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Guidelines for the CLASSIFICATION & CODING of Industrial Wastes and Hazardous Wastes

INDUSTRIAL & HAZARDOUS WASTE

November 1993
(Revised August 1995)
RG-22

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Guidelines for the
CLASSIFICATION & CODING
of Industrial Wastes and Hazardous Wastes

THIS IS A GUIDANCE DOCUMENT AND SHOULD NOT BE INTERPRETED AS A REPLACEMENT TO THE RULES. The rules for classifying and coding industrial wastes and hazardous wastes may be found in 30 Texas Administrative Code (TAC) Sections (§§) 335.501-.515 (Subchapter R).

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Section 1. Introduction

The purpose of this guideline is to support and assist generators of industrial waste and generators of hazardous waste in meeting the requirements of the 30 TAC Chapter 335 Subchapter R rules. These rules pertain to the classification and coding of industrial wastes and hazardous wastes generated within the state of Texas as well as for wastes generated outside of the state and sent to Texas for treatment, storage, and/or disposal. **They *DO NOT* apply to nonhazardous waste generated by nonindustrial facilities.**

Industrial wastes are wastes resulting from or incidental to any process of industry, process of manufacturing, mining operations or agricultural operations. Examples of industrial wastes are wastes from power generation facilities, manufacturing facilities, laboratories serving an industry, and parts manufacturers. Examples of nonindustrial facilities include schools, hospitals, churches, dry-cleaners, most service stations, and laboratories serving the general public.

Throughout this guideline, generators of industrial wastes and hazardous wastes will be referred to as "generator" or "generators". Also, 30 TAC Chapter 335 Subchapter R will be referred to as "these rules" or "the rules".

Please note that a Class 2 or Class 3 waste classification designation does not mean that the waste is incapable of causing harm in every management (or mismanagement) situation. Waste classification is **not a tool for site risk assessments** since it does not fully characterize a waste, the waste's environment, and the waste's potential receptors under a given scenario. Waste classification is a tool which categorizes the general potential of a waste to cause harm. The more potential to cause harm, the more stringent the classification.

Regardless of the classification of a waste, the generator remains responsible for the management of that waste such that it does not cause harm to human health and/or the environment.

Section 2. Identification of a Waste Stream

In order to classify and code a "waste stream", one must first know how a "waste stream" is identified.

For the purpose of this guideline and the rules' notification requirements, a "waste stream" is identified as a waste which is different from other wastes either in the way it was generated or in its physical and/ or chemical properties. Therefore, if a waste is altered it may be identified as more than one "waste stream". For example, if a hazardous acidic waste is neutralized it would be identified by one Texas Waste Code for the hazardous acidic waste and a different Texas Waste Code for the neutralized waste.

In addition, one waste stream CAN NOT have more than one CLASSIFICATION.

The following are examples of what is and is not considered a waste stream.

- DIFFERENT types of waste from the SAME types of processes are DIFFERENT waste streams. For example, a sludge removed from an electroplating vat is not the same waste stream as a liquid removed from an electroplating vat.

- SIMILAR types of wastes from DIFFERENT types of processes are DIFFERENT waste streams. For example, methylene chloride utilized in a paint stripping operation is not the same waste stream as methylene chloride utilized in laboratory analysis.

- SIMILAR types of wastes from SIMILAR types of processes may be considered ONE waste stream even if the wastes are generated in different parts of the generating site. For example, a site may have several paint booths which perform the same activities with the same materials and each produces drop cloth waste. These drop cloth wastes, from the various locations at this site, could be considered one waste stream as long as they were all classified the same.

- If a waste stream is treated (including processing, neutralization, dewatering, stabilization....) such that the physical and/or chemical characteristics of the waste have been altered, then a new waste stream has been generated. For example, if a sludge is dewatered, it may produce two new waste streams – one a solid and the other a liquid.

Any time the composition of a particular waste stream changes, it is potentially a new waste stream. (The waste stream is always a new waste stream if the composition change results in a change in waste classification.) In certain waste generation processes, the composition of waste streams may vary due to a variety of reasons. The Commission acknowledges this fact and notes that *slight* changes in composition, unless these changes impact the waste's classification or form code, do not require notification of an additional waste stream. For example, a generator whose paint waste sludge varies in its toluene and acetone concentration may not need to provide more than one notification on the sludge, unless its classification changes or the information submitted in the original notification changes. In many instances, this variation in composition can be addressed in the original notification submittal or subsequent notifications on the same waste stream by noting the potential concentration ranges. Ranges beyond this could be viewed as significant. The Commission also notes that *significant* compositional changes in a waste stream might not impact the waste's classification or form code; however, due to the significant change in composition, notification of a new waste stream may be warranted.

For specific guidance on specific waste streams, it is suggested that the generator contact the Commission.

Section 3. Waste Classification Checklist

This checklist is to be used as a guideline in classifying nonindustrial hazardous waste and all industrial waste. Generators should refer to 30 TAC Chapter 335 Subchapter R §§335.501-.508 for a more detailed explanation of waste classifications.

In determining a waste stream's classification, a generator may utilize process knowledge and/or analytical testing. Information and documentation requirements for these two evaluation methods may be found in Section 5 (DOCUMENTATION REQUIREMENTS) of this guideline.

For convenience purposes, the nonhazardous classification criteria that could involve analytical testing have been marked with a ★. This **does not** mean that analytical testing is the only way to evaluate these criteria. If sufficient process knowledge is available, little or no analytical analysis may need to be performed. The generator will need to evaluate what is known about the waste and then determine if it is sufficient to address the classification criteria *or* if testing is required.

Please note that generators are required to fully document the information utilized in making their waste classifications. **A completed checklist does not qualify as full documentation.** Documentation should be in a written and/or electronically stored format which is reasonably accessible and easily reproducible. Documentation should include all rationale, process knowledge, sample collection methods, testing procedures, analytical data and quality control utilized in the classification determination.

Part I. Hazardous Waste Determination – to be performed by all generators of waste

A hazardous waste determination is based upon the RCRA definition of a hazardous waste as found in 40 CFR Part 261. This guideline reflects the hazardous waste definition as of January 1, 1993. Should that definition change, the generator is still responsible for making a proper hazardous waste determination in accordance with the latest regulations – **NOT** with what is printed in this guideline.

(Please note that 40 CFR §261.3 and §261.4 exclude certain types of wastes, under certain conditions, from being considered hazardous wastes. Generators may wish to review these exclusions when determining whether or not their wastes are hazardous.)

Please note that if your waste exhibits a hazardous characteristic, and is not considered hazardous debris, and has subsequently been stabilized to meet the Land Disposal Restrictions in 40 CFR Part 268, it may be classified according to the Class 1 or Class 2 classification criteria (it is not however, eligible for classification as a Class 3 waste).

If the answer to any of the following questions in this Part is "yes", then the waste is hazardous. **If it is hazardous it can not be classified as a nonhazardous waste.**

_____ Is the waste a listed hazardous waste, mixed with a listed hazardous waste, or derived from a listed hazardous waste?

Descriptions of listed waste are found in 40 CFR §261.31 through §261.33 (40 CFR Part 261 Subpart D). These are often referred to as the

- "F" listed waste (waste from non-specific sources - §261.31),

- "K" listed waste (wastes from specific sources - §261.32),
- "P" listed waste (unused acute hazardous off-specification materials as well as container residues and spill residues of these materials - §261.33), and
- "U" listed waste (unused toxic hazardous off-specification materials as well as container residues and spill residues of these materials - §261.33).

_____ Is the waste ignitable per 40 CFR §261.21?

Liquid wastes (other than those aqueous waste containing less than 24% alcohol by volume) which have a flash point less than 60 degrees C (140 degrees F) are ignitable wastes. (Test method: Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D-93-79 or D-93-80, or a Setaflash-Closed Cup Tester, using the test method specified in ASTM Standard D-3278-78)

Non-liquid wastes which are capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burn so vigorously and persistently that they create a hazard, are considered ignitable wastes.

Wastes which meet the definition of an ignitable compressed gas (see 49 CFR §173.300) are ignitable wastes.

Wastes which meet the definition of oxidizer (see 49 CFR §173.151) are ignitable wastes.

_____ Is the waste corrosive per 40 CFR §261.22?

Aqueous wastes which have a pH less than or equal to 2 or greater than or equal to 12.5 are considered corrosive wastes.

Liquid wastes which corrode steel at a rate greater than 6.35 mm (0.250 inches) per year are considered corrosive wastes.

_____ Is the waste reactive per 40 CFR §261.23?

A waste is reactive if it is capable of detonation or explosive decomposition or reaction:

1. at standard temperature and pressure, or
2. if subjected to a strong ignition source, or
3. heated under confinement.

A waste is reactive if, when mixed with water it is:

1. potentially explosive, or
2. reacts violently, or
3. generates toxic gases or vapors.

A cyanide or sulfide bearing waste is reactive if, when exposed to pH conditions between 2 and 12.5, it can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment. (Generally, if a waste generates **250** ppm or more reactive cyanides or **500** ppm or more reactive sulfides, it is considered a reactive waste).

A waste is reactive if it is:

1. normally unstable and readily undergoes violent change without detonating, or
2. a forbidden explosive (see 49 CFR §173.53), or
3. a Class B explosive (see 49 CFR §173.88).

_____ Is the waste toxic per 40 CFR §261.24?

A waste is toxic for any constituent which leaches at or greater than the regulatory level set by EPA when the waste is subjected to the Toxicity Characteristic Leachate Procedure (TCLP) as described in EPA Method 1311 (SW-846).

TCLP Regulatory Levels	
arsenic – 5.0 mg/l barium – 100.0 mg/l benzene – 0.5 mg/l cadmium – 1.0 mg/l carbon tetrachloride – 0.5 mg/l chlordane – 0.03 mg/l chlorobenzene – 100.0 mg/l chloroform – 6.0 mg/l chromium – 5.0 mg/l o-cresol – 200.0 mg/l m-cresol – 200.0 mg/l p-cresol – 200.0 mg/l cresol – 200.0 mg/l 2,4-D – 10.0 mg/l 1,4-dichlorobenzene – 7.5 mg/l 1,2-dichloroethane – 0.5 mg/l 1,1-dichloroethylene – 0.7 mg/l 2,4-dinitrotoluene – 0.13 mg/l endrin – 0.02 mg/l heptachlor (and its epoxide) – 0.008 mg/l	hexachlorobenzene – 0.13 mg/l hexachlorobutadiene – 0.5 mg/l hexachloroethane – 3.0 mg/l lead – 5.0 mg/l lindane – 0.4 mg/l mercury – 0.2 mg/l methoxychlor – 10.0 mg/l methyl ethyl ketone – 200.0 mg/l nitrobenzene – 2.0 mg/l pentachlorophenol – 100.0 mg/l pyridine – 5.0 mg/l selenium – 1.0 mg/l silver – 5.0 mg/l tetrachloroethylene – 0.7 mg/l toxaphene – 0.5 mg/l trichloroethylene – 0.5 mg/l 2,4,5-trichlorophenol – 400.0 mg/l 2,4,6-trichlorophenol – 2.0 mg/l 2,4,5-TP (Silvex) – 1.0 mg/l vinyl chloride – 0.2 mg/l

If the answer to any of the preceding questions in this Part is "yes", then the waste is hazardous. If it is hazardous it can not be classified as a nonhazardous waste. If the answers are "no" to *all* of the preceding questions and the waste is an industrial waste, then proceed to Part II. **If the answers are "no" to *all* the preceding questions and the waste is a nonindustrial waste, stop here.**

Part II. Class 1 & Class 2 Waste Determination – applicable to nonhazardous, industrial waste only – (The corresponding regulations for the following criteria can be found in 30 TAC §335.505 and §335.508.)

If the answer to any of the following non-numbered questions in this Part is yes, then the nonhazardous, industrial waste is a Class 1 waste. If all the answers to the following non-numbered questions in this Part are no, then the industrial waste can be considered a Class 2 waste.

_____ Has the generator chosen to classify his nonhazardous waste as a Class 1 waste?

_____ Are any of the answers to questions (1) or (2) below "NO"?

If the waste is a container, greater than 5 gallons in holding capacity, which has held a Hazardous Substance (as defined in 40 CFR Part 302), a hazardous waste, a Class 1 waste, and/or a material which would be classified as a hazardous or Class 1 waste if disposed, answer questions (1) and (2). If not, proceed to the next non-numbered question.

(1) Has the container had all its residues removed? ❑ Yes ❑ No

(2) Has the container been rendered unusable? ❑ Yes ❑ No

(For a list of hazardous substances, please see Appendix A (Hazardous Substances) of this guideline.)

_____ Does the waste contain asbestos material identified as Regulated Asbestos Containing Material (RACM) as defined in 40 CFR Part 61? ★

(See "Regulated Asbestos Containing Material" under Section 10 (DEFINITIONS AND TERMS) for additional information on RACM.)

_____ Is the waste contaminated by a material which originally contained greater than or equal to 50 parts per million total polychlorinated biphenyls (PCBs)? ★

_____ Does the waste contain greater than or equal to 50 ppm PCBs? ★

_____ Are the answers to **both** of the numbered questions below "yes"? (If one, or both, of the answers to the questions below is/are "no", enter "no" for this question.)

(1) Is your waste specifically identified as a petroleum substance or as contaminated with a material identified as a petroleum substance waste (see Section 10 – Definitions and Terms)? ❑ Yes ❑ No

(2) Does the waste contain greater than 1500 parts per million (ppm) TPH? ❑ Yes ❑ No

_____ Is the waste from the production of a "new chemical substance" (as defined by the federal Toxic Substances Control Act, 15 U.S.C.A §2602(9))?

(See "New Chemical Substances Wastes" under Section 10 (DEFINITIONS AND TERMS) for details on how this particular type of waste may be classified as a Class 2 or Class 3 waste.)

_____ Is the waste generated outside the state of Texas?

(See "Wastes Generated Out-Of-State" under Section 10 (DEFINITIONS AND TERMS) for details on how this particular type of waste may be classified as a Class 2 or Class 3 waste.)

_____ If the waste is a liquid, does it have a flash point of less than 65.6 degrees C (150 degrees F)? ★

_____ Is the waste a solid or semi-solid which, under conditions normally incident to storage, transportation, and disposal, is liable to cause fires through friction, retained heat from manufacturing or processing, or which can be ignited readily, and when ignited burns so vigorously and persistently as to create a serious hazard?

_____ Is the waste a semi-solid or solid which, when mixed with an equivalent weight of ASTM Type II laboratory distilled or deionized water, produces a solution having a pH less than or equal to 2 or greater than or equal to 12.5? (Note: An exception for solidified, stabilized, encapsulated, or otherwise chemically-bound wastes is provided for in 30 TAC §335.505(3)) ★

_____ Does the waste leach Class 1 toxic constituents at or above the levels listed in Table 1, Appendix 1 of 30 TAC Chapter 335 Subchapter R when submitted to the Toxicity Characteristic Leaching Procedure (TCLP)? ★

(See Appendix C of this guideline for a copy of Table 1, Appendix 1.)

(Where matrix interferences of the waste cause the Practical Quantitation Limit (PQL) of the specific analysis to be greater than the Maximum Concentration listed in Table 1, Appendix 1 of 30 TAC Chapter 335 Subchapter R, then the achievable PQL becomes the Maximum Concentration, provided that the generator maintains documentation which would satisfactorily demonstrate to the Commission that lower levels of quantitation of a sample are not possible. A satisfactory demonstration includes the results from the analysis of the waste for that specific analyte by a laboratory utilizing an appropriate method found in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods (EPA SW-846), "Methods for Chemical Analysis of Water and Wastes" (EPA-600 series), "Standard Methods for the Examination of Water and Wastewater", "American Society for Testing and Materials (ASTM) Standard Methods", or an equivalent method approved by the Commission.)

_____ Is information lacking which demonstrates that the waste is a Class 2 or Class 3 waste?

If the answer to any of the preceding non-numbered questions in this Part is yes, then the nonhazardous, industrial waste is a Class 1 waste. If all the answers to the preceding non-numbered questions in this Part are no, then the industrial waste can be considered a Class 2 waste.

If the answers are "no" to *all* of the preceding non-numbered questions of this Part and the industrial generator wishes to evaluate the waste for a possible Class 3 classification, then proceed to Part III. If not, stop here.

Part III. Class 3 Waste Determination – applicable to nonhazardous, industrial waste which does not meet the definition of a Class 1 waste and is not specifically identified as a Class 2 waste – (The corresponding regulations for the following criteria can be found in 30 TAC §335.507 and §335.508.)

If the answer to any of the following questions in Part III A. is "YES", then the nonhazardous, industrial waste can ***not*** be considered a Class 3 waste.

A.

_____ Is the waste an empty container?

_____ Is the waste a medical waste regulated under the 30 TAC Chapter 330 Subchapter Y?

(See "Medical Wastes" under Section 10 (DEFINITIONS AND TERMS) for additional details concerning this type of waste.)

_____ When submitted to the 7-Day Distilled Water Leachate Test, does the waste leach constituents at or above the Maximum Contaminant Levels listed in Table 3, Appendix 1 of 30 TAC Chapter 335 Subchapter R? ★

(See Appendix D of this guideline for a copy of Table 3, Appendix 1 of 30 TAC Chapter 335 Subchapter R.)

_____ When submitted to the Toxicity Characteristic Leaching Procedure (TCLP), does the waste leach Class 1 toxic constituents listed in Table 1, Appendix 1 of 30 TAC Chapter 335 Subchapter R at or above their detection levels? ★

NOTE: *Excluded from this list of Class 1 toxic constituents are those constituents which are addressed in the previous question (ie. constituents identified in Table 3, Appendix 1 of 30 TAC Chapter 335 Subchapter R).*

(See Appendix E of this guideline for information pertaining to detection limits for Table 1, Appendix 1 constituents.)

_____ Does the waste contain detectable levels of petroleum hydrocarbons (Method: 418.1) ★

_____ Does the waste contain detectable levels of polychlorinated biphenyls (PCBs)? ★

_____ Is the waste readily decomposable?

If the answer to any of the preceding questions of Part III A. is "YES", then the nonhazardous, industrial waste can *not* be considered a Class 3 waste. If all the answers to the preceding questions of Part III A. are "NO", then proceed to Part III B. to continue the evaluation for a possible Class 3 classification.

B.

_____ Is the waste inert? (Inertness refers to chemical inactivity of an element, compound, or a waste.)

_____ Is the waste essentially insoluble**?

If the answer to any question under Part III B. is "NO", then the nonhazardous, industrial waste can **not** be considered a Class 3 waste. If all the answers to the questions in Part III A. are "NO", and all the answers to the questions in Part III B. are "YES", then the nonhazardous industrial waste can be considered a Class 3 waste.

The Commission may determine, on a case-by-case basis, the merits of a variance request for a specific nonhazardous classification. The burden of justifying the need for a variance is on the requestor. The requestor must submit information sufficient to clearly indicate the issues involved, the reason(s) for the request, and both the positive and negative impacts that may result from the granting of the variance. (The regulations corresponding to this these types of variance requests can be found in 30 TAC §335.514 (Variance from Waste Classification Provisions).)

★ As a reminder, these characteristics need not necessarily be addressed by analytical analysis. A generator may be able to address them through process knowledge. For more information on process knowledge, please see Section 5 (DOCUMENTATION REQUIREMENTS) of this guideline.

** Please note that wastes which contain liquids are *NOT* considered insoluble.

Section 4. Texas Waste Code Formula

The formula for generating the Texas waste code is given below. The regulations corresponding to this formula can be found in 30 TAC §335.503 (Waste Classification and Waste Coding Required).

4 digit Sequence Number	+	**3 digit Form Code**	+	**1 digit Classification Code**
(___ ___ ___ ___	+	___ ___ ___	+	___)
(identifies specific waste streams – it is usually assigned by the generator; however, under certain conditions, the Commission may assign this code — see text for additional details)		(provides an indication of the general type of waste — it is not an extremely exact code– see Appendix G– Form Codes)		(H = hazardous 1 = class 1 2 = class 2 3 = class 3)

Part I. Sequence Number

The following summarizes the various types of 4-digit sequence numbers utilized in the Texas waste code.

〈 an **arbitrary and unique 4-digit number from 0001 to 9999 (no alpha characters)** which is *assigned by the generator* when adding a waste stream to a facility's **Notice of Registration** – Once assigned to a particular waste stream, a sequence number **can not be reassigned** to another waste stream. – Generators need not sequentially assign sequence numbers to a facility's waste streams. – Prior to January 1, 1993, the Commission associated 3 digit waste sequence numbers with waste streams on a facility's Notice of Registration. These 3 digit waste sequence numbers have no relationship to the new 4 digit sequence numbers. Therefore, when assigning a 4 digit sequence number, generators need not convert the 3 digit waste sequence number to the 4 digit sequence number, unless they choose to do so. (Please note that a generator can add contaminated soil and other spill related waste to a site's Notice of Registration rather than going through the one-time-shipment program which is discussed later.)

〈 a **4-digit alpha-numeric number** *assigned by the Commission* to wastes generated by **unregistered generators** within Texas

〈 a **4-digit alpha-numeric number** *assigned by the Commission* to wastes under the **one-time shipment program** (Spill waste not managed under the Emergency Response Program may be handled in this manner.)

〈 **"SPIL"** *to be assigned only by the Emergency Response Division* **for spill wastes regulated under the Emergency Response Program**

〈 **"OUTS"** to be utilized for **wastes generated outside of Texas**

〈 **"CESQ"** to be utilized by **Municipal and Industrial Conditionally Exempt Small Quantity Generators**

〈 **"TSDF"** to be utilized by facilities which (1) receive and consolidate a waste stream with other like waste streams (thus not changing the form or composition of the waste) or (2) store a received waste without treating or changing the form or composition of that waste. – This sequence number does not pertain to wastes which are treated or in some other way altered. – The "TSDF" designation is to be used only by **facilities that store and/or accumulate a quantity of waste from more than one site for subsequent shipment to a treatment or disposal facility**.

Part II. Form Codes

The second series of numbers found in the Texas waste code represents the "form code". The list of form codes as well as flow charts depicting the choosing of a form code can be found in Appendix G (Form Codes) of this guideline.

Form codes are broken down into ten major categories. They are LAB PACKS, INORGANIC LIQUIDS, ORGANIC LIQUIDS, INORGANIC SOLIDS, ORGANIC SOLIDS, INORGANIC SLUDGES, ORGANIC SLUDGES, INORGANIC GASES, ORGANIC GASES, and PLANT TRASH. The various form codes and corresponding descriptions can be found under these categories.

In determining a waste stream's form code, it is recommended that the generator first determine into which major category the waste stream fits. The generator should then review all the form code descriptors in that category to determine which code or codes best describe the generator's waste stream. The generator should then chose, from his narrowed down list, a form code for the waste stream.

As noted in the waste code formula, form codes are fairly generic in their descriptions. It is possible that more than one form code may be applicable to a particular waste stream. Generators should assign the form code which best describes the waste stream. If more than one form code can "best describe" the waste stream, then the generator should choose one of those several codes.

Part III. Classification Code

An indication of the waste stream's classification completes the Texas waste code. As the formula indicates, this code will be "H" or "1" or "2" or "3".

Section 5. Documentation Requirements

Part I. Introduction

Now that you have reviewed the sections for the classification and coding of industrial wastes and hazardous wastes, you are ready to compile supporting documentation. Documentation should support the classification and coding of a waste stream. A generator is required to maintain proper documentation on-site for each waste stream generated by the facility for at least 3 years after the waste is no longer generated, stored, or recycled or until site closure.

The TNRCC randomly audits a portion of waste stream notifications in order to ensure proper classification and coding of waste in Texas. When a generator receives a request for information for the purpose of an audit, the information that a generator has gathered to meet the documentation requirements shall be submitted to the TNRCC. If your facility is required or requested to submit analytical data, quality control data, sample documentation or process knowledge, please use the following information in this section as a guide to compiling supporting documentation.

Please note: All information outlined in this section and on the TNRCC forms shall be assembled prior to notification to the TNRCC of a waste stream and shall be kept on-site in an easily retrievable format.

Part II. General

The following documentation is to be maintained on-site for all industrial waste and all hazardous waste generated by the facility. (The regulations corresponding to documentation requirements can be found in 30 TAC §335.9 (Recordkeeping and Annual Reporting Procedures Applicable to Generators), §335.70 (Recordkeeping), §335.510 (Sampling Documentation), §335.511 (Use of Process Knowledge), and §335.513 (Documentation Required).)

- description of the waste
- date of initial waste generation
- a detailed description of the process generating the waste
- waste classification determination (including a proper hazardous waste determination)
- all information and rationale (including process knowledge and/or analytical data) used to characterize/classify the waste

Part III. Process Knowledge

If process knowledge is utilized in the classification of a waste, that process knowledge must be documented and maintained. (Please note that process knowledge must be maintained in some type of written or electronic storage format. It **can not** be stored solely in someone's mind.) The process knowledge must support a generator's rationale as to why the waste has

been designated a particular classification. It must also support the generator's rationale as to why a particular test method was not performed, limiting the amount of analytical testing required.

The following are examples of process knowledge which may assist in waste classification determinations.

- Material Safety Data Sheets (MSDSs) (Please note that not all MSDSs contain information on all constituents found in a product. MSDSs were not created for the purpose of Texas waste classification determinations; however, they may be a helpful tool.)
- manufacturer's literature
- identification of chemicals/materials involved in the waste stream generation process (including any potential break down products)
- full description of waste stream generation activities
- identification of potential contaminants
- other documentation generated in conjunction with a particular process
- preliminary testing results

Part IV. Analytical Data

When process knowledge does not sufficiently support a particular classification, analytical data described in this part must be documented. If a generator utilizes analytical data to classify a waste, it must be supported by Quality Control Data and Sample Documentation information. This part outlines information that must be maintained when analytical data is utilized for classification purposes.

- Sampling Procedures
  - dates of sample collection
  - description of the site and/or unit from which the sample was taken, including sampling locations
  - the method of sampling and equipment used for sampling
  - a description of the sampling techniques, including collection, containerization, and preservation
  - rationale for the sampling plan (why does the number, type and location of samples taken accurately represent the waste stream being characterized)

〈 Analytical Data

- analytical results including quality control data
- identification of analytical methods (including any preparatory methods)
- identification of detection limits
- identification of the laboratory performing the analytical analysis
- documentation which satisfactorily demonstrates that lower levels of quantitation are not possible (This is only necessary when a nonhazardous waste is being evaluated against the Class 1 criteria and matrix interferences of the waste causes the Practical Quantitation Limit (PQL) of a Class 1 toxic constituent (Appendix 1, Table 1 – Appendix E of this guideline) to be greater than the Maximum Concentration listed.)

〈 Chain of Custody

Part V. Classification Checklist

The classification checklist of Section 3 can be used as a guideline in the classification of industrial waste and hazardous waste. **A completed checklist submitted for an audit does not represent sufficient documentation.** When utilizing the Checklist in waste classification, a generator should support a response ("yes" or "no") by analytical data and/or process knowledge.

A generator must be able to demonstrate why an answer "yes" or "no" appears on the checklist for a particular question.

For example, a generator answers "no" to the question *"Is the waste ignitable per 40 CFR §261.21."* The generator can support this response by submitting either analytical data and/or process knowledge. If process knowledge is used, it must be **specific**. A general statement such as "The waste is not ignitable." would not be sufficient. If, however, the generator (1) reviews all constituents that may be present in the waste; (2) determines that each constituent which comprises the waste does not meet the definition of an ignitable waste; and (3) determines that the process that generated the waste does not introduce any ignitable characteristics to the stream, the generator would be able to document this more specific process knowledge that supports a "no" response. Additionally, a generator would need to keep copies of the information that demonstrates all the constituents in the waste stream would not cause the waste to exhibit the characteristic of ignitability.

Part VI. Summary

Generators should keep in mind that documentation should demonstrate why a waste has been designated a particular classification. A good rule of thumb is if anyone can review a generator's classification documentation, using the published criteria and/or the checklist, and arrive at the same classification as the generator, then the generator has probably done a good job of compiling supporting documentation for a waste. If someone other than the generator has reviewed the classification of a waste, and still has some unanswered questions, the generator may want to conduct some additional work on gathering documentation for that waste stream.

Section 6. Notification Requirements

The following outlines the types of documentation that are required to be submitted to the Commission. **For information on notification forms, please see Section 7 (Texas Natural Resource Conservation Commission (TNRCC) Forms).**

(The regulations corresponding to notification requirements can be found in 30 TAC §335.6 (Notification Requirements), §335.502 (Conversion to New Waste Notification and Classification System), §335.508 (Classification of Specific Industrial Solid Wastes), §335.509 (Waste Analysis) and §335.513 (Documentation Required).

Part I. Industrial Waste and Hazardous Waste:

For industrial waste and hazardous waste, a generator is to submit the following documentation prior to that waste's shipment or disposal **and** no later than 90 days after the waste's initial generation. This information is to be submitted on Commission forms. For information on obtaining these forms, please see the following section (TEXAS NATURAL RESOURCE CONSERVATION COMMISSION (TNRCC) FORMS).

- description of the waste
- date of initial waste generation
- description of the process generating the waste
- a proper hazardous waste determination
- waste classification determination (ie. hazardous, Class 1, Class 2, or Class 3)
- description of the waste's management
- appropriate notification forms

Part II. Class 3 Waste:

For a Class 3 waste, the generator must also submit all supporting rationale and documentation utilized in that waste's classification.

Part III. Class 2 and Class 3 Out Of State Waste:

For Class 2 and Class 3 wastes generated outside the state of Texas, the generator must also submit all supporting rationale and documentation utilized in those wastes' classification. (Please note that a generator may not ship into Texas, a waste generated outside the state of Texas as a Class 2 or Class 3 waste until the Commission reviews the generator's supporting documentation and concurs with the waste's classification.)

For Maquiladoras shipping waste into or through Texas, they should complete TNRCC form 0293 (Maquila Initial Tracking Form), and receive a "Q" number to facilitate shipping their waste.

Part IV. Class 2 and Class 3 New Chemical Substance Waste:

For a Class 2 or Class 3 waste generated as the result of the production of a "new chemical substance", the generator must also submit the following.

〈 all supporting rationale and documentation utilized in that waste's classification

〈 notice to the Commission that the waste is from the production of a "new chemical substance"

Please note that nonhazardous waste from the production of a "new chemical substance" is to be managed as a Class 1 waste, unless the generator can provide appropriate analytical data and/or process knowledge which demonstrates that the waste meets the definition of a Class 2 or Class 3*, and the Commission concurs. If the generator has not received concurrence or concurrence denial from the Commission within 120 days from the date of the request for review, the generator may manage the waste according to the requested classification, but not prior to giving 10 working days written notice to the Commission of its intent to manage the waste as a Class 2 or a Class 3.

Part V. Alternate Analytical Methods:

Generators who propose an alternate analytical method must validate their alternate method by demonstrating that the method is equal to or superior in accuracy, precision, and sensitivity to the corresponding SW-846, EPA-600/4-79/020, "Standard Methods for the Examination of Water and Wastewater" or ASTM method. In making this demonstration, the generator must provide the Commission, at a minimum, the following documentation.

〈 a full description of the proposed method (including all equipment and reagents to be used)

〈 a description of type of waste and waste matrices to be analyzed

〈 comparative results of the proposed method and corresponding SW-846, EPA-600/4-79/020, "Standard Methods for the Examination of Water and Wastewater" or ASTM method

〈 a complete assessment of interferences

〈 a description of quality control procedures

〈 additional information as needed and/or requested by the Commission to adequately review the proposed alternate method

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* The definitions for Class 2 and Class 3 wastes may be found in Section 10. (Definitions and Terms).

Section 7. TNRCC Forms

Notification forms can be obtained by contacting a TNRCC region office near you or the Waste Evaluation Section of the Industrial and Hazardous Waste Division. The Waste Evaluation Section may be contacted at (512) 239-6832 or the following address:

Waste Evaluation Section, MC 129
Industrial and Hazardous Waste Division
Texas Natural Resource Conservation Commission
Post Office Box 13087
Austin, Texas 78711-3087

If calling, please provide the receptionist with either the name of the form you are seeking or its order form number. This will help the Commission get the correct form to you as quickly as possible.

Notification forms available at the time of this guideline's printing include the following:

- The **"Hazardous or Industrial Waste Initial Notification Form"** which is used for initial notification of a site. (order form number: **TNRCC-0002**)

- The **"Hazardous Or Industrial Waste Stream Notification Form"** which is used when adding a waste stream to a Notice of Registration or when recoding a 6 digit waste code into one or more 8 digit waste codes. (order form number: **TNRCC-0002A**)

- The **"Hazardous or Industrial Waste Management Units Form"** which is to be used when adding waste management unit information to a Notice of Registration. (order form number: **TNRCC-0002B**)

- The **"EPA Notification of Regulated Waste Activity"** which is to be used when notifying of a federally regulated hazardous waste activity. (ie. the generation of hazardous waste) (order form number: **EPA 8700-12**)

- The **"Request For Texas Waste Code And Authorization For Shipment Of Class 1, 2, 3 and EPA Hazardous Waste"** form which is to be used for the one-time-shipment of waste that is not regularly generated and which is not identified on a site's Notice of Registration. (order form number: **TNRCC-0757**)

- The **"Maquiladora Initial Tracking Form"** which is used for initial notifications of an American company's operation and its Mexican subsidiary operations participating in the Maquiladora program (order form number: TNRCC-0239)

- The **"Maquiladora Tracking Form for Hazardous or Industrial Waste Stream Additions"** which is used to add waste streams to an existing Maquiladora registration (order form number: TNRCC-0239A)

- The **"Maquiladora Tracking Form for Additional Hazardous or Industrial Waste Management Units"** which is used to add waste management units to an existing Maquiladora registration (order form number: TNRCC-0239B)

Section 8. Conversion to the 8 Digit Waste Code System

(The regulations applicable to these conversions can be found in 30 TAC §335.501-335.502)

Conversion to the new waste classification and coding system is as follows:

July 1, 1994 – On or before this date each regulated generator is to provide updated notification information (including classification and waste code) on each waste stream coded prior to January 1, 1993, unless that waste stream is no longer generated. In determining a waste stream's classification it is not necessary for the generator to re-evaluate, re-sample and re-analyze his waste if his existing information meets the documentation requirements outlined in this booklet and in the rules.

Nonindustrial generators need only provide this update for the hazardous waste they generate.

January 1, 1995 – By this date all waste will be subject to the requirements of these rules. Until this date, wastes classified and coded prior to January 1, 1993 can be managed in accordance with the pre-1993 classification ***or*** they can be managed in accordance with their reclassification and coding. Waste codes and classifications issued to waste streams prior to January 1, 1993 under the one-time shipment program can only be utilized for the one shipment for which they were secured. After the shipment has occurred, the code cannot be utilized for additional shipments.

June 7, 1995 – On and after this date all newly generated waste streams and all previously unclassified waste streams shall be subject to the classification and coding requirements of these rules.

January 1, 1996 – By this date all waste stream notifications should be updated in accordance with the amended classification requirements.

The Commission may determine, on a case-by-case basis, the merits of a variance request from compliance with the conversion schedule. The burden of justifying the need for a variance is on the requestor. The requestor must submit information sufficient to clearly indicate the issues involved, the reason(s) for the request, and both the positive and negative impacts that may result from the granting of the variance. See variance requirements under 30 TAC §335.514.

Section 9. Management Provisions for Mechanical Shredding Wastes

(The regulations corresponding to the management provisions for mechanical shredding waste can be found in 30 TAC §335.508 (Classification of Specific Industrial Solid Wastes).)

Wastes generated by the mechanical shredding of automobiles, appliances, or other items of scrap, used or obsolete metals shall be handled according to the provisions set forth in Texas Solid Waste Disposal Act, Health and Safety Code, §361.019 (Vernon Pamphlet 1992), until the Commission develops specific standards for the classification of this waste and assures adequate disposal capacity.

These provisions include a stipulation that such waste shall be accepted, without authorization from the Commission, in a municipal solid waste facility that has previously been authorized to accept and has accepted Class 1 nonhazardous industrial solid wastes or Class 2 nonhazardous industrial solid wastes if the waste contains no free liquids, is not a hazardous waste, and satisfies other criteria that may be established by Commission rule.

Section 10. Definitions and Terms

Definitions and terms as used in this guideline:

Characteristically Hazardous Waste (40 CFR Part 261 Subpart C) – Any waste that exhibits the characteristic of ignitability, corrosivity, reactivity and/or toxicity as defined by the EPA in 40 CFR Part 261 Subpart C. These are often referred to as the "D" wastes.

Class 1 Waste (30 TAC §335.1) – Any waste or mixture of waste which, because of its concentration or physical or chemical characteristics is toxic, corrosive, flammable, a strong sensitizer or irritant, a generator of sudden pressure by decomposition, heat or other means, and may pose a substantial present or potential danger to human health or the environment when improperly processed, stored, transported, or disposed of or otherwise managed.

Class 2 Waste (30 TAC §335.1) – Any individual waste or combination of waste which cannot be described as Hazardous, Class 1 or Class 3 waste.

Class 3 Waste (30 TAC §335.1) – Inert and essentially insoluble waste, usually including but not limited to, materials such as rock, brick, glass, dirt, and certain plastics and rubber, etc. that are not readily decomposable.

Classification Code (30 TAC §335.503) – This code represents the classification of the waste stream. It is the last digit of the waste code. "**H**" represents hazardous wastes, "**1**" represents class 1 wastes, "**2**" represents class 2 wastes, and "**3**" represents class 3 wastes.

Conditionally Exempt Small Quantity Generator (30 TAC §335.6, §335.9, §335.10, §335.78, §335.323, §335.503) – Generators of less than 100 kg per month of industrial waste, or, generators of less than 100 kg per month of hazardous waste or less than 1 kg per month of acutely hazardous waste.

Form Code (30 TAC §335.503) – This code is associated with the description of a general type of waste stream. It consists of three (3) numeric characters. It appears in the 5th, 6th, and 7th position of the waste code. More than one form code may apply to a particular waste stream.

Hazardous Substance (30 TAC §335.508) – Any substance designated as a "hazardous substance" in 40 CFR PART 302 (i.e. 40 CFR Table 302.4) including, but not limited to, RCRA hazardous waste.

Hazardous Waste Determination (30 TAC §335.504) – An evaluation of a waste to determine if it meets the RCRA definition of a hazardous waste.

Inert (30 TAC §335.507) – Inertness refers to the chemical inactivity of an element, compound, or waste. Ingredients added to mixtures chiefly for bulk and/or weight purposes are normally considered inert.

Listed Hazardous Waste (40 CFR Part 261 Subpart D) – Specific types of wastes which have been identified by the EPA as hazardous. These are often referred to as the "F" wastes (waste from non-specific sources), "K" wastes (wastes from specific sources), "P" wastes (acute hazardous off-specification species, container residues and spill residues thereof), and "U" waste (toxic hazardous off-specification species, container residues and spill residues thereof). A waste is considered a listed hazardous waste if it is listed or mixed with or derived from a waste listed as hazardous waste in 40 CFR Part 261 Subpart D and has not been provided a particular exclusion from the definition of hazardous as provided in 40 CFR §261.3 and §261.4.

Medical Wastes (30 TAC §335.508) – Nonhazardous medical wastes which are subject to the provisions of 30 TAC Chapter 330 Subchapter Y are designated as Class 2 wastes. An example of such waste would be needle bearing syringes from plant infirmaries.

New Chemical Substances Wastes (30 TAC §335.508) – If a nonhazardous industrial waste is generated as a result of the commercial production of a "new chemical substance" as defined by the federal Toxic Substances Control Act, 15 U.S.C.A § 2602(9), the generator shall manage that waste as a Class 1 waste, unless the generator can provide appropriate analytical data and/or process knowledge which demonstrates that the waste is Class 2 or Class 3, and the Commission concurs. If the generator has not received concurrence from the Commission within 120 days from the date of the request for review, the generator may manage the waste according to the requested classification, but not prior to giving 10 working days written notice to the Commission.

Wastes Generated Out-Of-State (30 TAC §335.508) – All nonhazardous industrial waste generated outside the state of Texas and transported into or through Texas for processing, storage, or disposal shall be classified as Class 1 unless the waste satisfies the Class 2 or Class 3 criteria as defined in 30 TAC §335.506, §335.507 or §335.508; a request for Class 2 or Class 3 waste determination is submitted to the Commission and accompanied by all supporting process knowledge and analytical data; and the Commission approves the classification.

Petroleum Hydrocarbon Containing Wastes (30 TAC §335.508) – Wastes resulting from the cleanup of leaking underground storage tanks (USTs) which are regulated under 30 TAC Chapter 334 Subchapter K (relating to Petroleum Substance Waste) are not subject to classification under 30 TAC Chapter 335 Subchapter R.

Petroleum Substance – A crude oil or any refined or unrefined fraction or derivative of crude oil which is a liquid at standard conditions of temperature and pressure.

(A) Except as provided in subparagraph (C) of this section for the purposes of this chapter, a "petroleum substance" shall be limited to a substance in or a combination or mixture of substances within the following list (except for any listed substance regulated as a hazardous waste under the federal Solid Waste Disposal Act, Subtitle C (42 United States Code §6921, et seq.)) and which is liquid at standard conditions of temperature (20& Centigrade) and pressure (1 atmosphere):

(i) basic petroleum substances – i.e., crude oils, crude oil fractions, petroleum feedstocks, and petroleum fractions;

(ii) motor fuels – a petroleum substance which is typically used for the operation of internal combustion engines and/or motors (which includes but is not limited to stationary engines and engines used in transportation vehicles and marine vessels);

(iii) aviation gasolines – i.e., Grade 80, Grade 100, and Grade 100-LL;

(iv) aviation jet fuels – i.e., Jet A, Jet A-1, Jet B, JP-4, JP-5, and JP-8;

(v) distillate fuel oils – i.e., Number 1-D, Number 1, Number 2-D, and Number 2;

(vi) residual fuel oils – i.e., Number 4-D, Number 4-light, Number 4, Number 5-light, Number 5-heavy, and Number 6;

(vii) gas-turbine fuel oils – i.e., Grade O-GT, Grade 1-GT, Grade 2-GT, Grade 3-GT, and Grade 4-GT;

(viii) illuminating oils – i.e., kerosene, mineral seal oil, long-time burning oils, 300 oil, and mineral colza oil;

(ix) lubricants – i.e., automotive and industrial lubricants;

(x) building materials – i.e., liquid asphalt and dust-laying oils;

(xi) insulating and waterproofing materials – i.e., transformer oils and cable oils;

(xii) used oils – (See definition for "used oil" in this section); and

(B) For the purposes of this chapter, a "petroleum substance" shall include solvents or a combination or mixture of solvents (except for any listed substance regulated as a hazardous waste under the federal Solid Waste Disposal Act, Subtitle C (42 United States Code §6921, et seq.)) and which is liquid at standard conditions of temperature (20& Centigrade) and pressure (1 atmosphere) - i.e., Stoddard solvent, petroleum spirits, mineral spirits, petroleum ether, varnish makers' and painters' naphthas, petroleum extender oils, and commercial hexane.

(C) The following materials are not considered petroleum substances:

(i) polymerized materials, i.e., plastics, synthetic rubber, polystyrene, high and low density polyethylene;

(ii) animal, microbial, and vegetable fats;

(iii) food grade oils;

(iv) hardened asphalt and solid asphaltic materials – i.e., roofing shingles, roofing felt, hot mix (and cold mix); and

(v) cosmetics.

RCRA – Resource Conservation and Recovery Act

Regulated Asbestos Containing Material (RACM) (30 TAC §335.508) – RACM includes the following materials.

〈 **Friable** asbestos material, any material containing more than 1 percent asbestos (*) that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

〈 **Nonfriable** asbestos, when dry, can not be crushed to a powder by hand pressure.

— Category I nonfriable asbestos containing material that has become friable – *(Category I nonfriable asbestos containing material is defined as asbestos containing packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than 1 percent asbestos.)* *

— Category I nonfriable asbestos containing material that has been subjected to sanding, grinding, cutting, or abrading – *(Category I nonfriable asbestos containing material is defined as asbestos containing packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than 1 percent asbestos.)* *

— category II nonfriable asbestos containing material that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course or demolition or renovation operations – *(Category II nonfriable asbestos containing material is defined as any material, excluding Category I nonfriable asbestos containing material, containing more than 1 percent asbestos (*) that, when dry, can not be crumbled, pulverized, or reduced to powder by hand pressure.)*

Regulated Generators (30 TAC Chapter 335 Subchapters A and C) – Generators of industrial waste in quantities greater than 100 kg per month and generators of hazardous waste in quantities of greater than 100 kg of hazardous waste per month or 1 kg of acutely hazardous waste per month (**Please Note**: those generators of less than 100 kg of industrial waste or less than 100 kg of hazardous waste or 1 kg of acutely hazardous waste are considered Conditionally Exempt Small Quantity Generators and hence are not subject to regulation regarding notification, manifesting and fees).

Sequence Number (30 TAC §335.503) - Appears as the first four (4) digits of the waste code. This unique number helps identify a particular waste stream, and can only be used once per facility (i.e. each sequence number assigned to a waste code is site specific to that particular 5-digit Solid Waste Registration Number).

Solid Waste (30 TAC §335.1 and 40 CFR §261.2) – Any discarded material such as garbage; refuse; sludge from a waste treatment plant, water supply treatment plant or air pollution control facility; or other material including solid, liquid, semisolid, or contained gaseous material resulting from industrial, municipal, commercial, mining, and agricultural operations. Solid wastes include any material that is abandoned by being disposed of, burned, or incinerated *or* accumulated, stored, or treated before or in lieu of these activities. Certain recycled materials are also considered wastes. Solid wastes are often referred to as "wastes". (For the complete definition of a "solid waste" please refer to 30 TAC §335.1 (Solid Waste).)

Specific Industrial Solid Waste (30 TAC §335.508) – Nonhazardous wastes for which specific classification criteria and/or a form code has been established.

Stabilized Wastes (30 TAC §335.508) – Waste which are hazardous solely because they exhibit a hazardous characteristic, which are not considered hazardous debris, which are subsequently stabilized and no longer exhibit a hazardous characteristic and which meet the land disposal restrictions as defined in 40 CFR Part 268 may be classified according to the Class 1 or Class 2 classification criteria as defined in §335.505, §335.506, and §335.508 of this title (relating to Class 1 Determination; Class 2 Waste Determination; and Classification of Specific Industrial Solid Wastes)

Waste Code (30 TAC §335.503) – This code identifies a waste stream. It is eight (8) characters in length. The first four digits represent the sequence number, the next three digits represent the form code, and the last digit represents the waste's classification. (Sequence Number + Form Code + Classification Code = Waste Code)

WASTE STREAM (30 TAC §335.503) – see Section 2 (IDENTIFICATION OF A WASTE STREAM)

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* as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1 Polarized Light Microscopy

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Appendices

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Appendix A
Hazardous Substances

Applicability: **Empty Container Class 2 Evaluations**

The following is a listing of materials identified as hazardous substances (40 CFR Table 302.4) at the time of this guideline's printing. (CAS numbers of the materials are also provided.)

Hazardous Substance	CAS Number
Acenaphthene	83329
Acenaphthylene	208968
Acetaldehyde	75070
Acetaldehyde, chloro-	107200
Acetaldehyde,trichloro-	75876
Acetamide,N-(aminothioxomethyl)-	591082
Acetamide, N-9H-fluoren-2-yl-	53963
Acetic acid	64197
Acetic acid (2,4-dichlorophenoxy)-	94757
Acetic anhydride	108247
Acetone	67641
Acetone cyanohydrin	75865
Acetonitrile	75058
Acetophenone	98862
2-Acetylaminofluorene	53963
Acetyl bromide	506967
Acetyl chloride	75365
1-Acetyl-2-thiourea	591082
Acrolein	107028
Acrylamide	79061
Acrylic acid	79107
Acrylonitrile	107131
Adipic acid	124049
Aldicarb	116063
Aldicarb sulfone	1646884
Aldrin	309002
Allyl alcohol	107186
Allyl chloride	107051
Aluminum phosphide	20859738
Aluminum sulfate	10043013
Ametycin (7-amino-9-a-methoxymitosane)	50077
5-(Aminomethyl)-3- isoxazolol.	2763964
4-Aminopyridine	504245
Amitrole	61825
Ammonia	7664417
Ammonium acetate	631618
Ammonium benzoate	1863634
Ammonium bicarbonate	1066337
Ammonium bichromate	7789095
Ammonium bifluoride	1341497
Ammonium bisulfite	10192300
Ammonium carbamate	1111780
Ammonium carbonate	506876
Ammonium chloride	12125029
Ammonium chromate	7788989
Ammonium citrate, dibasic	3012655
Ammonium fluoborate	13826830
Ammonium fluoride	12125018
Ammonium hydroxide	1336216
Ammonium oxalate	6009707
Ammonium picrate	131748
Ammonium silicofluoride	16919190
Ammonium sulfamate	7773060
Ammonium sulfide	12135761
Ammonium sulfite	10196040
Ammonium tartrate	14307438
Ammonium thiocyanate	1762954
Ammonium vanadate	7803556
Amyl acetate	628637
iso-	123922
sec-	626380
tert-	625161
Aniline	62533
Anthracene	120127
Antimony	7440360
Antimony pentachloride	7647189
Antimony potassium tartrate	28300745
Antimony tribromide	7789619
Antimony trichloride	10025919
Antimony trifluoride	7783564
Antimony trioxide	1309644
Aroclor 1016	12674112
Aroclor 1221	11104282
Aroclor 1232	11141165
Aroclor 1242	53469219
Aroclor 1248	12672296
Aroclor 1254	11097691
Aroclor 1260	11096825
Arsenic	7440382

Appendix A–continued

Hazardous Substance	CAS Number
Arsenic acid H3AsO4	1327522
Arsenic disulfide	1303328
Arsenic pentoxide, As205	1303282
Arsenic trichloride	7784341
Arsenic trioxide, As203	1327533
Arsenic trisulfide	1303339
Arsinic acid, dimethyl-	75605
Asbestos	1332214
Auramine	492808
Azaserine	115026
1H-Azepine-1-carbothioic acid, hexahydro-, S-ethyl ester	2212671
Aziridine, 2-methyl	75558
Barium cyanide	542621
Benz[c]acridine	225514
Benzanthracene	56553
Benz[a]anthracene,	57976
Benzene	71432
Benzene, dichloromethyl-	98873
Benzene, 2,6-diiso- cyanato-1-methyl-	91087
m-Benzene, dimethyl	108383
o-Benzene, dimethyl	95476
p-Benzene, dimethyl	106423
Benzenesulfonic acid chloride	98099
Benzene, (trichloromethyl)	98077
Benzidine	92875
Benzo[a]anthracene	56553
1,3-Benzodioxol-4-ol, 2,2-dimethyl-, (Bendiocarb phenol)	22961826
1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate (Bendiocarb)	22781233
Benzo[b]fluoranthene	205992
Benzo(k)fluoranthene	207089
Benzoic acid	65850
Benzoic acid, 2-hydroxy-, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo [2,3-b]indol- 5-yl methylcarbamate ester (1:1) (Physostigmine salicylate)	57647
Benzonitrile	100470
Benzo[rst]pentaphene	189559
Benzo[ghi]perylene	191242
Benzo[a]pyrene	50328
p-Benzoquinone	106514
Benzotrichloride	98077
Benzoyl chloride	98884
Benzyl chloride	100447
Beryllium chloride	7787475
Beryllium powder	7440417
Beryllium fluoride	7787497
Beryllium nitrate	13597994
alpha -BHC	319846
beta - BHC	319857
delta - BHC	319868
2,2'-Bioxirane	1464535
Bis(2-chloroethyl) ether	111444
Bis(2-chloroethoxy) methane	111911
Bis(dimethylthiocarbamoyl) sulfide	97745
Bis (2-ethylhexyl) phthalate	117817
Bromoacetone	598312
Bromoform	75252
4-Bromophenyl phenyl ether	101553
Brucine	357573
1-Butanol	71363
2-Butenal	123739
Butyl acetate	123864
iso-	110190
sec-	105464
tert-	540885
n-Butyl alcohol	71363
Butylamine	109739
iso-	78819
sec-	513495
sec-	13952846
tert-	75649
Butyl benzyl phthalate	85687
Butyric acid	107926
iso-Butyric acid	79312
Cadmium	7440439
Cadmium acetate	543908
Cadmium bromide	7789426
Cadmium chloride	10108642
Calcium arsenate	7778441
Calcium arsenite	52740166
Calcium carbide	75207
Calcium chromate	13765190
Calcium cyanide Ca(CN)2	592018
Calcium dodecylbenzene sulfonate	26264062
Calcium hypochlorite	7778543
Captan	133062
Carbamic acid, butyl-, 3-iodo-2-n-butylcarbamate)	55406536

Appendix A–continued

Hazardous Substance	CAS Number
Carbamic acid, [1-[(butylamino) carbonyl]-1H-benzimidazol-2-yl, methyl ester (Benomyl)	17804352
Carbamic acid, 1H-benzimidazol -2-yl, methyl ester	10605217
Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester	101279
Carbamic acid, dimethyl-,1-[(dimethylamino)carbonyl]-5-methyl-1H-pyrazol-3-yl ester	644644
Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl) -1H-pyrazol-5- yl ester	119380
Carbamic acid, methyl-, 3-methylphenyl ester	1129415
Carbamic acid, [1,2-phenylenebis (iminocarbonothioyl)]bis-, dimethyl ester	23564058
Carbamic acid, phenyl-, 1-methylethyl ester (Propham)	122429
Carbamic acid, methylnitroso-, ethyl ester	615532
Carbamic chloride, dimethyl-	79447
Carbamodithioic acid, dibutyl, sodium salt	136301
Carbamodithioic acid, diethyl-, 2- chloro-2-propenyl ester	95067
Carbamodithioic acid, diethyl-, sodium salt	148185
Carbamodithioic acid, dimethyl, potassium salt	128030
Carbamodithioic acid, dimethyl-, sodium salt	128041
Carbamodithioic acid, dimethyl-, tetraanhydrosulfide with orthothioselenious acid	144343
Carbamodithioic acid, (hydroxymethyl)methyl monopotassium salt	51026289
Carbamodithioic acid, methyl,- monopotassium salt	137417
Carbamodithioic acid, methyl-, monosodium salt	137428
Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro -2-propenyl) ester	2303175
Carbamothioic acid, bis(2-methylpropyl)-, S-ethyl ester	2008415
Carbamothioic acid, butylethyl-, S-propyl ester	1114712
Carbamothioic acid, cyclohexylethyl-, S-ethyl ester	1134232
Carbamothioic acid, dipropyl-, S- ethyl ester (EPTC)	759944
Carbamothioic acid, dipropyl-, S- (phenylmethyl) ester	52888809
Carbamothioic acid, dipropyl-, S- propyl ester	1929777
Carbaryl	63252
Carbofuran	1563662
Carbofuran, phenol	1563388
Carbosulfan	55285148
Carbon disulfide	75150
Carbon oxyfluoride	353504
Carbon tetrachloride	56235
Chlorambucil	305033
Chlordane	57749
Chlorine	7782505
Chlornaphazine	494031
p-Chloroaniline	106478
Chlorobenzene	108907
Chlorobenzilate	510156
p-Chloro-m-cresol	59507
Chlorodibromomethane	124481
Chloroethane	75003
2-Chloroethyl vinyl ether	110758
Chloroform	67663
Chloromethyl methyl ether	107302
2-Chloronaphthalene	91587
2-Chlorophenol	95578
4-Chlorophenyl phenyl ether	7005723
3-Chloropropionitrile	542767
Chlorosulfonic acid	7790945
4-Chloro-o-toluidine, hydrochloride	3165933
Chlorpyrifos	2921882
Chromic acetate	1066304
Chromic acid	11115745
Chromic sulfate	10101538
Chromium	7440473
Chromous chloride	10049055
Chrysene	218019
Cobaltous bromide	7789437
Cobaltous formate	544183

Appendix A–continued

Hazardous Substance	CAS Number
Cobaltous sulfamate	14017415
Copper	7440508
Copper, dimethyldithiocarbamate	137291
Copper cyanide CuCN	544923
Coumaphos	56724
Creosote	8001589
Cresol(s)	1319773
m-Cresol	108394
o-Cresol	95487
p-Cresol	106445
Cumene	98828
Cupric acetate	142712
Cupric acetoarsenite	12002038
Cupric chloride	7447394
Cupric nitrate	3251238
Cupric oxalate	5893663
Cupric sulfate	7758987
Cupric sulfate, ammoniated	10380297
Cupric tartrate	815827
Cyanides	57125
Cyanogen	460195
Cyanogen bromide (CN)Br	506683
Cyanogen chloride	506774
Cyclohexane	110827
Cyclohexanone	108941
2-Cyclohexyl-4,6-dinitrophenol	131895
Cyclophosphamide	50180
2,4-D Acid	94757
2,4-D Esters	94111
	94791
	94804
	1320189
	1928387
	1928616
	1929733
	2971382
	25168267
	53467111
Daunomycin	20830813
DDD	72548
DDE	72559
DDT	50293
Diallate	2303164
Diazinon	333415
Dibenzo[a,h]anthracene	53703
1,2-Dibromo-3-chloropropane	96128
Dibutylnitrosoamine	924163
Di-n-butyl phthalate	84742
Dicamba	1918009
Dichlobenil	1194656
Dichlone	117806
Dichlorobenzene	25321226
1,2-Dichlorobenzene	95501
1,3-Dichlorobenzene	541731
1,4-Dichlorobenzene	106467
3,3'-Dichlorobenzidine	91941
Dichlorobromomethane	75274
1,4-Dichloro-2-butene	764410
Dichlorodifluoromethane	75718
1,1-Dichloroethane	75343
1,2-Dichloroethane	107062
1,1-Dichloroethylene	75354
1,2-Dichloroethylene	156605
Dichloroethyl ether	111444
Dichloroisopropyl	108601
Dichloromethoxy ethane	111911
Dichloromethyl ether	542881
2,4-Dichlorophenol	120832
2,6-Dichlorophenol	87650
Dichlorophenylarsine	696286
Dichloropropane	26638197
1,1-Dichloropropane	78999
1,3-Dichloropropane	142289
1,2-Dichloropropane	78875
Dichloropropane -	8003198
Dichloropropene	26952238
2,3-Dichloropropene	78886
1,3-Dichloropropene	542756
2,2-Dichloropropionic acid	75990
Dichlorvos	62737
Dicofol	115322
Dieldrin	60571
Diethylamine	109897
Diethylarsine	692422
1,4-Diethylenedioxide	123911
O,O-Diethyl S-methyl dithiophosphate	3288582
Diethyl-p-nitrophenyl phosphate	311455
Diethyl-o-phthalate	84662
O,O-Diethyl O-pyrazinyl phosphorothioate	297972
Diethylstilbestrol	56531
Dihydrosafrole	94586
Diisopropylfluorophosphate	55914
3,3'-Dimethoxybenzidine	119904
Dimethylamine	124403

Appendix A–continued

Hazardous Substance	CAS Number
p-Dimethylamino- azobenzene	60117
3,3'-Dimethylbenzidine	119937
1,1-Dimethylhydrazine	57147
1,2-Dimethylhydrazine	540738
alpha,alpha-Dimethylphenethylamine	122098
2,4-Dimethylphenol	105679
Dimethyl phthalate	131113
Dimethyl sulfate	77781
Dinitrobenzene (mixed)	25154545
m-Dinitrobenzene	99650
o-Dinitrobenzene	528290
p-Dinitrobenzene	100254
4,6-Dinitro-o-cresol and salts	534521
Dinitrophenol	25550587
2,5-Dinitrophenol	329715
2,6-Dinitrophenol	573568
2,4-Dinitrophenol	51285
Dinitrotoluene	25321146
3,4-Dinitrotoluene	610399
2,4-Dinitrotoluene	121142
2,6-Dinitrotoluene	606202
Dinoseb	88857
Di-n-octyl phthalate	117840
1,2-Diphenylhydrazine	122667
Diphosphoramide, octamethyl-	152169
Diphosphoric acid, tetraethyl ester	107493
Dipropylamine	142847
Di-n-propylnitrosamine	621647
Diquat	85007
Disulfoton	298044
Dithiobiuret	541537
1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-[(methylamino) carbonyl]oxime (Tirpate)	26419738
Diuron	330541
Dodecylbenzenesulfonic acid	27176870
Endosulfan	115297
alpha - Endosulfan	959988
beta - Endosulfan	33213659
Endosulfan sulfate	1031078
Endothall	145733
Endrin & metabolites	72208
Endrin aldehyde	7421934
Epichlorohydrin	106898
Epinephrine	51434
Ethanimidiothioic acid, 2-(dimethylamino-N-hydroxy-2-oxo-, methyl ester (A2213)	30558431
Ethanimidiothioic acid, 2-(dimethylamino)-N-[[(methylamino) carbonyl]oxy]-2-oxo-, methyl ester (Oxamyl)	23135220
Ethanimidothioic acid, N,N'-[thiobis[(methylimino) carbonyloxy]] bis-, dimethyl ester (Thiodicarb)	59669260
Ethanol, 2,2'-oxybis-, dicarbamate (Diethylene glycol, dicarbamate)	5952261
Ethion	563122
Ethyl acetate	141786
Ethyl acrylate	140885
Ethylbenzene	100414
Ethyl carbamate	51796
Ethyl cyanide	107120
Ethylenebisdithiocarbamic acid, salts & esters	111546
Ethylenediamine	107153
Ethylenediamine-tetraacetic acid (EDTA)	60004
Ethylene dibromide	106934
Ethylene glycol monoethyl ether	110805
Ethylene oxide	75218
Ethylenethiourea	96457
Ethylenimine	151564
Ethyl ether	60297
Ethyl methacrylate	97632
Famphur	52857
Ferric ammonium citrate	1185575
Ferric ammonium oxalate	2944674
Ferric chloride	7705080
Ferric fluoride	7783508
Ferric nitrate	10421484
Ferric sulfate	10028225
Ferrous ammonium sulfate	10045893
Ferrous chloride	7758943
Ferrous sulfate	7720787
Fluoranthene	206440
Fluorene	86737
Fluorine	7782414
Fluoroacetamide	640197

Appendix A–continued

Hazardous Substance	CAS Number
Fluoroacetic acid, sodium salt	62748
Formaldehyde	50000
Formic acid	64186
Fumaric acid	110178
Furan	110009
Furfural	98011
Glauramine	492808
Glycidylaldehyde	765344
Guanidine, N-methyl-N'-nitro-N-nitroso-	70257
Guthion	86500
Heptachlor	76448
Heptachlor epoxide	1024573
Hexachlorobenzene	118741
Hexachlorobutadiene	87683
Hexachlorocyclohexane (all isomers)	608731
Hexachlorocyclohexane (gamma isomer - Lindane)	58899
Hexachlorocyclopentadiene	77474
Hexachloroethane	67721
Hexachlorophene	70304
Hexachloropropene	1888717
Hexaethyl tetraphosphate	757584
Hydrazine	302012
Hydrazine, 1,2-diethyl-	1615801
Hydrochloric acid	7647010
Hydrocyanic acid	74908
Hydrofluoric acid	7664393
Hydrogen sulfide H2S	7783064
Hydroperoxide, 1-methyl-1-phenylethyl	80159
Indeno(1,2,3-cd)pyrene	193395
Iron, tris (dimethylcarbamodithioato-S,S')-	14484641
Isobutyl alcohol	78831
Isodrin	465736
Isophorone	78591
Isoprene	78795
Isopropanolamine dodecylbenzenesulfonate	42504461
Isosafrole	120581
3(2H)-Isoxazolone, 5-(aminomethyl)-	2763964
Kepone	143500
Lasiocarpine	303344
Lead	7439921
Lead acetate	301042
Lead arsenate	7784409
Lead chloride	7758954
Lead fluoborate	13814965
Lead fluoride	7783462
Lead iodide	10101630
Lead nitrate	10099748
Lead phosphate	7446277
Lead stearate	7428480
Lead subacetate	1335326
Lead sulfate	15739807
Lead sulfide	1314870
Lead thiocyanate	592870
Lithium chromate	14307358
Malathion	121755
Maleic acid	110167
Maleic anhydride	108316
Maleic hydrazide	123331
Manganese dimethyldithiocarbamate	15339363
Melphalan	148823
Mercaptodimethur	2032657
Mercuric cyanide	592041
Mercuric nitrate	10045940
Mercuric sulfate	7783359
Mercuric thiocyanate	592858
Mercurous nitrate	10415755
Mercury	7439976
Mercury fulminate	628864
Methacrylonitrile	126987
Methanesulfonic acid, ethyl ester	62500
Methanimidamide, N,N-dimethyl-N'-[3-[[(methylamino)carbonyl] oxylphenyl]-, monohydrochioride	23422539
Methanimidamide, N,N-dimethyl-N'-[2-methyl-4-[[(methylamino) carbonyl]oxy]phenyl]-	17702577
Methanol	67561
Methapyrilene	91805
Methomyl	16752775
Methoxychlor	72435
Methyl bromide	74839
1-Methylbutadiene	504609
Methyl chloride	74873
Methyl chlorocarbonate	79221
3-Methylcholanthrene	56495
4,4'-Methylene(bis)-chloroaniline	101144
Methylene bromide	74953
Methylene chloride	75092
Methyl ethyl ketone (MEK)	78933
Methyl ethyl ketone peroxide	1338234
Methyl hydrazine	60344

Appendix A–continued

Hazardous Substance	CAS Number
Methyl iodide	74884
Methyl isobutyl ketone	108101
Methyl isocyanate	624839
Methylmercaptan	74931
Methyl methacrylate	80626
Methyl parathion	298000
Methylthiouracil	56042
Mevinphos	7786347
Mexacarbate	315184
Mitomycin C	50077
Monoethylamine	75047
Monomethylamine	74895
Naled	300765
1-Naphthalenamine	134327
2-Naphthalenamine	91598
Naphthalene	91203
1,4-Naphthalenedione	130154
Naphthenic acid	1338245
alpha-Naphthylthiourea	86884
Nickel	7440020
Nickel ammonium sulfate	15699180
Nickel carbonyl	13463393
Nickel chloride	7718549
Nickel cyanide Ni(CN)2	557197
Nickel hydroxide	12054487
Nickel nitrate	14216752
Nickel sulfate	7786814
Nicotine, & salts	54115
Nitric acid	7697372
p-Nitroaniline	100016
Nitrobenzene	98953
Nitrogen dioxide NO2	10102440
Nitrogen oxide NO	10102439
Nitroglycerine	55630
Nitrophenol (mixed)	25154556
m-Nitrophenol	554847
o-Nitrophenol	88755
p-Nitrophenol	100027
2-Nitropropane	79469
N-Nitrosodiethanol-amine	1116547
N-Nitrosodiethylamine	55185
N-Nitrosodimethylamine	62759
N-Nitrosodiphenylamine	86306
N-Nitrosopyrrolidine	930552
Nitrotoluene	1321126
m-Nitrotoluene	99081
o-Nitrotoluene	88722
p-Nitrotoluene	99990
5-Nitro-o-toluidine	99558
Osmium tetroxide OsO4	20816120
Paraformaldehyde	30525894
Paraldehyde	123637
Parathion	56382
Pentachlorobenzene	608935
Pentachloroethane	76017
Pentachloronitrobenzene	82688
Pentachlorophenol	87865
Perchloroethylene	127184
Phenacetin	62442
Phenanthrene	85018
Phenol	108952
Phenol, 3-(1-methylethyl)-, methyl carbamate (m-Cumenyl methylcarbamate)	64006
Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate (Promecarb)	2631370
Phenylmercury acetate	62384
Phenylthiourea	103855
Phorate	298022
Phosgene	75445
Phosphine	7803512
Phosphoric acid	7664382
Phosphorodithioic acid, O,O-dimethyl S-[2(methylamino)- 2-oxoethyl] ester	60515
Phosphorus	7723140
Phosphorus oxychloride	10025873
Phosphorus pentasulfide	1314803
Phosphorus trichloride	7719122
Phthalic anhydride	85449
Piperidine, 1-nitroso-	100754
Piperidine, 1,1'-(tetrathiodicarbonothioyl)-bis-(Bis(pentamenthylene)thiuram tetrasulfide)	120547
Polychlorinated Biphenyls (PCBs)	1336363
Aroclor 1016	12674112
Aroclor 1221	11104282
Aroclor 1232	11141165
Aroclor 1242	53469219
Aroclor 1248	12672296
Aroclor 1254	11097691
Aroclor 1260	11096825
Potassium arsenate	7784410
Potassium arsenite	10124502

Appendix A–continued

Hazardous Substance	CAS Number
Potassium bichromate	7778509
Potassium chromate	7789006
Potassium cyanide K(CN)	151508
Potassium hydroxide	1310583
Potassium permanganate	7722647
Potassium silver cyanide	506616
Pronamide	23950585
1,3-Propane sultone	1120714
Propanedinitrile	109773
Propargite	2312358
Propargyl alcohol	107197
Propionic acid	79094
Propionic anhydride	123626
n-Propylamine	107108
Propylene oxide	75569
Pyrene	129000
Pyrethrins	121299
Pyridine	110861
Pyridine, 2-methyl-	109068
Pyrrolo[2,3-b] indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3aS-cis)- Physostigmine	57476
Quinoline	91225
Reserpine	50555
Resorcinol	108463
Saccharin and salts	81072
Safrole	94597
Selenious acid	7783008
Selenium	7782492
Selenium dioxide	7446084
Selenium sulfide SeS2	7488564
Selenourea	630104
Silver	7440224
Silver cyanide Ag (CN)	506649
Silver nitrate	7761888
Silvex (2,4,5-TP)	93721
Sodium	7440235
Sodium arsenate	7631892
Sodium arsenite	7784465
Sodium azide	26628228
Sodium bichromate	10588019
Sodium bifluoride	1333831
Sodium bisulfite	7631905
Sodium chromate	7775113
Sodium cyanide Na(CN)	143339
Sodium dodecyl-benzenesulfonate	25155300
Sodium fluoride	7681494
Sodium hydrosulfide	16721805
Sodium hydroxide	1310732
Sodium hypochlorite	7681529
Sodium methylate	124414
Sodium nitrite	7632000
Sodium phosphate, dibasic	7558794
Sodium phosphate, tribasic	7601549
Sodium selenite	10102188
Streptozotocin	18883664
Strontium chromate	7789062
Strychnine, & salts	57249
Styrene	100425
Sulfur monochloride	12771083
Sulfuric acid	7664939
2,4,5-T acid	93765
2,4,5-T amines	2008460
	1319728
	3813147
	6369966
	6369977
2,4,5-T esters	93798
	1928478
	2545597
	25168154
	61792072
2,4,5-T salts	13560991
1,2,4,5-Tetrachlorobenzene	95943
2,3,7,8-Tetrachloro-dibenzo-p-dioxin (TCDD)	1746016
1,1,1,2-Tetrachloroethane	630206
1,1,2,2-Tetrachloroethane	79345
2,3,4,6-Tetrachlorophenol	58902
Tetraethyl lead	78002
Tetraethyldithiopyro-phosphate	3689245
Tetrahydrofuran	109999
Tetranitromethane	509148
Thallium	7440280
Thallium(I) acetate	563688
Thallium(I) carbonate	6533739
Thallium chloride TlCl	7791120
Thallium(I) nitrate	10102451
Thallium oxide TI203	1314325
Thallium selenite	12039520
Thallium(I) sulfate	7446186
2H-1,3,5-Thiadiazine-2-thione, tetrahydro-3,5-dimethyl-(Dazomet)	533744
Thioacetamide	62555

Appendix A–continued

Hazardous Substance	CAS Number
Thiofanox	39196184
Thioperoxydicarbonic diamide, tetrabutyl (Tetrabutylthiuram disulfide)	1634022
Thioperoxydicarbonic diamide, tetraethyl (Disulfiram)	97778
Thiophenol	108985
Thiosemicarbazide	79196
Thiourea	62566
Thiourea,(2-chlorophenyl)-	5344821
Thiram	137268
Toluene	108883
Toluenediamine	95807
Toluene diisocyanate	584849
o-Toluidine	95534
p-Toluidine	106490
o-Toluidine hydrochloride	636215
Toxaphene	8001352
2,4,5-TP esters	32534955
Trichlorfon	52686
1,2,4-Trichlorobenzene	120821
1,1,1-Trichloroethane	71556
1,1,2-Trichloroethane	79005
Trichloroethene(Trichloroethylene)	79016
Trichloromethane-sulfenyl chloride	594423
Trichloromono- fluoromethane	75694
Trichlorophenol	25167822
2,3,4-Trichlorophenol	15950660
2,3,5-Trichlorophenol	933788
2,3,6-Trichlorophenol	933755
3,4,5-Trichlorophenol	609198
2,4,5-Trichlorophenol	95954
2,4,6-Trichlorophenol	88062
Triethanolamine dodecylbenzene-sulfonate	27323417
Triethylamine	121448
Trimethylamine	75503
1,3,5-Trinitrobenzene	99354
Tris(2,3-dibromopropyl) phosphate	126727
Trypan blue	72571
Uracil mustard	66751
Uranyl acetate	541093
Uranyl nitrate	10102064
Urea, N-ethyl-N- nitroso-	759739
Urea, N-methyl-N- nitroso	684935
Vanadium pentoxide	1314621
Vanadyl sulfate	27774136
Vinyl chloride	75014
Vinyl acetate	108054
Vinylamine, N-methyl- N-nitroso-	4549400
Warfarin, and salts, when present at concentrations greater than 0.3%.	81812
Xylene (mixed)	1330207
Xylenol	1300716
Zinc	7440666
Zinc acetate	557346
Zinc ammonium chloride	52628258
Zinc, bis(dimethyl carbomodithioato -S,S')-, (Ziram)	137304
Zinc, bis(diethylcarbamo dithioato -S,S')-(Ethyl Ziram)	14324551
Zinc borate	1332076
Zinc bromide	7699458
Zinc carbonate	3486359
Zinc chloride	7646857
Zinc cyanide Zn(CN)2	557211
Zinc fluoride	7783495
Zinc formate	557415
Zinc hydrosulfite	7779864
Zinc nitrate	7779886
Zinc phenolsulfonate	127822
Zinc phosphide Zn(3)P(2), when present at concentrations greater than 10%.	1314847
Zinc silicofluoride	16871719
Zinc sulfate	7733020
Zirconium nitrate	13746899
Zirconium potassium fluoride	16923958
Zirconium sulfate	14644612
Zirconium tetrachloride	10026116

[As amended at 57 FR 61492, Dec. 24, 1992; 58 FR 35314, June 30, 1993; 59 FR 31551, June 20, 1994; 60 FR 7824 Feb. 9, 1995]

Appendix B
Ignitable Solids

(30 TAC Chapter 335 Subchapter R Appendix 1 Table 2)

Constituents listed from Department of Transportation Regulations, 49 CFR Part 173 Subpart E, October 1, 1993. Note: The presence of a constituent on this table in a nonhazardous waste does not automatically identify that waste as a Class 1 ignitable waste. The constituents on this table are examples of materials which could be considered Class 1 ignitable waste. The physical characteristics of the waste will be the determining factor as to whether or not a waste is ignitable. Refer to 30 TAC §335.505(2) (relating to Class 1 Waste Determination) for the Class 1 ignitable criteria.

Compound or Material

Aluminum, metallic, powder

Alkali metal amalgams

Alkali metal amides

Aluminum alkyl halides

Aluminum alkyl hydrides

Aluminum alkyls

Aluminum borohydrides

Aluminum carbide

Aluminum ferrosilicon powder

Aluminum hydride

Aluminum phosphide

Aluminum resinate

Aluminum silicon powder

Ammonium picrate

2,2'-Azodi-(2,4-dimethyl-4-methoxyvaleronitrile)

2, 2'-Azodi-(2,4-dimethylvaleronitrile)

1, 1' Azodi-(hexahydrobenzonitrile)

2,2'-Azodi (2-methyl-butryronitrile)

Azodiisobutryonitrile

Barium, metallic

Barium alloys, pyrophoric

Barium azide

Benzene-1,3-disulfohydrazide

Benzene sulfohydrazide

4-(Benzyl(ethly)amino)-3-ethoxy benzenediazonium zinc chloride

4-(Benzyl(methyl)amino)-3-ethoxy benzenediazonium zinc chloride

Borneol

Boron trifluoride dimethyl etherate

5-tert-Butyl-2,4,6-trinitro-m-xylene

Calcium, metallic

Calcium carbide

Calcium chlorite

Calcium cyanamide

Calcium dithionite

Calcium hypochlorite

Calcium manganese silicon

Calcium silicon powder

Calcium phosphide

Calcium pyrophoric

Calcium resinate

Calcium silicide

Camphor, synthetic

Carbon, activated

Celluloid

Cerium

Cesium metal

Chromic acid or chromic acid mixture, dry

Cobalt naphthenates, powder

Cobalt resinate

Decaborane

2-Diazo-1-naphthol-4-sulpho-chloride

2-Diazo-1-naphthol-5-sulpho-chloride

2,5-Diethoxy-4-morpholinobenzene diazonium zinc choride

Diethylzinc

4-Dimethylamino-6-(2-dimethyamino ethoxy) toluene-2-diazonium zinc choride

Dimethylzinc

Dinitrophenolates

Dinitroresorcinol

N,N'-Dinitroso-N,N'-dimethyl terephthalamide

N,N'-Dinitrosopentamethyl enetetramine

Diphenyloxide-4,4'disulfohydrazide

Dipicryl sulfide

4-Dipropylaminobenzene diazonium zinc chloride

Ferrocerium

Ferrosilicon

Appendix B–continued

Compound or Material		
Ferrous metal	N-methyl-N'-nitro-Nitrosoguanidine	Sodium2-diazo-1-naphthol-5-sulphonate
Hafnium powder	Naphthalene	Sodium dichloro-s-triazine-trione
Hexamine	Nitrocellulose mixtures	Sodium dinitro-ortho-cresolate
Hydrides, metal	Nitroguanidine	Sodium hydride
3-(2-Hydroxyethoxy)-4-pyrrolidin-1-ylbenzenediazonium zinc chloride	p-Nitrosodimethylaniline	Sodium hydrosulfite
Iron oxide, spent	Paraformaldehyde	Sodium methylate
Isosorbide dinitrate mixture	Pentaborane	Sodium nitrite and mixtures
Lead phosphite, dibasic	Peratic acid	Sodium picramate, wet
Lithium acetylide-ethylene diamine complex	Phosphorous, amorphous, red	Sodium potassium alloys
Lithium alkyls	Phosphorous, white or yellow	Sodium sulfide, anhydrous
Lithium aluminum hydride	Phosphoric anhydride	Stannic phosphide
Lithium amide, powdered	Phosphorous pentachloride	Strontium phosphide
Lithium borohydride	Phosphorus pentasulfide	Sulfur
Lithium ferro silicon	Phosphorus sesquisulfide	Titanium metal powder
Lithium hydride	Phosphorus trisulfide	Titanium hydride
Lithium metal	Picric acid	Trichloroisocyanuric acid
Lithium nitride	Potassium, metallic	Trichlorosilane
Lithium silicon	Potassium dichloro-s-triazine-trione	Trichloro-s-triazinetrione
Magnesium granules	Potassium borohydride	Trinitrobenzoic acid
Magnesium aluminum phosphide	Potassium dithionite	Trinitrophenol
Magnesium diamide	Potassium phosphide	Trinitrotoluene
Magnesium phosphide	Potassium sulfide, anhydrous	Urea nitrate
Magnesium silicide	Rubidium metal	Zinc ammonium nitrite
Maneb	Silicon powder, amorphous	Zinc phosphide
Manganese resinate	Silver picrate	Zinc powder
Methyl magnesium bromide	Sodium, metallic	Zinc resinate
Methyldichlorosilane	Sodium aluminum hydride	Zirconium hydride, powdered
Mono-(trichloro) tetra-(monopotassium dichloro)-penta-s-triazinetrione	Sodium amide	Zirconium picramate
	Sodium borohydride	Zirconium powder
	Sodium chlorite	Zirconium scrap
	Sodium2-diazo-1-naphthol-4-sulphonate	

Appendix C
Class 1 Toxic Constituents' Maximum Leachable Concentrations (MCLs)

(30 TAC Chapter 335 Subchapter R Appendix 1 Table 1)

Applicability: **Class 1, 2, and 3 Waste Evaluations**

Values are based on information contained in Federal Registers Vol. 55 / Friday, July 27, 1990; Vol. 56 / June 7, 1991; and Integrated Risk Information Systems, Environmental Protection Agency, and 40 CFR 264 Appendix 9.

Compound	CAS No.	Concentration (mg/l)	Compound	CAS No.	Concentration (mg/l)
Acenaphthene	83-32-9	210	1,4-Dichlorobenzene	106-46-7	7.5
Acetone	67-64-1	400	3,3-Dichlorobenzidine	91-94-1	0.8
Acetonitrile	75-05-8	20	1,2-Dichloroethane	107-06-2	0.50
Acetophenone	98-86-2	400	Dichlorodifluoromethane	75-71-8	700
Acrylamide	79-06-1	0.08	1,1-Dichloroethylene	75-35-4	0.6
Acrylonitrile	107-13-1	0.6	1,3-Dichloropropene	542-75-6	1
Aniline	62-53-3	60	2,4-Dichlorophenol	120-83-2	10
Anthracene	120-12-7	1050	2,4-Dichlorophenoxy-acetic acid (2,4-D)	94-75-7	10.0
Antimony	7440-36-0	1	Dieldrin	60-57-1	0.02
Arsenic	7440-38-2	1.8	Diethyl phthalate	84-66-2	3000
Barium	7440-39-3	100.0	Dimethoate	60-51-5	70
Benzene	71-43-2	0.50	2,4-Dimethyphenol	105-67-9	70
Benzidine	92-87-5	0.002	2,6-Dimethyphenol	576-26-1	21
Beryllium	7440-41-7	0.08	m-Dinitrobenzene	99-65-0	0.4
Bis(2-chloroethyl)ether	111-44-4	0.3	2,4-Dinitrophenol	51-28-5	7
Bis(2-ethylhexyl) phthalate	117-81-7	30	2,4 -Dinitrotoluene (and 2,6-, mixture)	602-01-7	0.13
Bromodichloromethane	75-27-4	0.3	Dinoseb	88-85-7	3.5
Bromomethane	74-83-9	5	1,4-Dioxane	123-91-1	30
Butylbenzyl phthalate	85-68-7	700	Dioxins (Poly chlorinated dibenzo-p-dioxins)		
Cadmium	7440-43-9	0.5	2,3,7,8-TCDD	1746-01-6	0.005
Carbon disulfide	75-15-0	400	1,2,3,7,8-PeCDD	40321-76-4	0.010
Carbon tetrachloride	56-23-5	0.50	1,2,3,4,7,8-HxCDD	57653-85-7	0.050
Chlordane	57-74-9	0.03	1,2,3,6,7,8-HxCDD	34465-46-8	0.050
Chlorobenzene	108-90-7	70	1,2,3,7,8,9-HxCDD		0.050
Chloroform	67-66-3	6.0	Diphenylamine	122-39-4	90
Chloro-m-cresol, p	59-50-7	7000	1,2-Diphenylhydrazine	122-66-7	0.4
2-Chlorophenol	95-57-8	20	Disulfoton	298-04-4	0.1
Chromium	7440-47-3	5.0	Endosulfan	959-98-8	0.2
m-Cresol	108-39-4	200.0*	Endrin	72-20-8	.02
o-Cresol	95-48-7	200.0*	2-Ethoxyethanol	10-80-5	1400
p-Cresol	106-44-5	200.0*	Ethylbenzene	100-41-4	400
DDD	72-54-8	1	Ethylene dibromide	106-93-4	0.004
DDE	72-55-9	1	Ethylene Glycol	107-21-1	7000
DDT	50-29-3	1	Fluoranthene	206-44-0	140
Dibutyl phthalate	84-74-2	400			

Appendix C–continued

Compound	CAS No.	Concentration (mg/l)
Fluorene	86-73-7	140
Furans (Polychlorinated dibenzo furans)		
2,3,7,8-TCDF	51207-31-9	0.050
1,2,3,7,8-PeCDF		0.100
2,3,4,7,8-PeCDF		0.010
1,2,3,4,7,8-HxCDF		0.050
1,2,3,6,7,8-HxCDF		0.050
1,2,3,7,8,9-HxCDF		0.050
Heptachlor	76-44-8	0.008
Heptachlor epoxide	1024-57-3	0.04
Hexachlorobenzene	118-74-1	0.13
Hexachloro-1,3-butadiene	87-68-3	0.4
Hexachlorocyclopentadiene	77-47-4	20
Hexachloroethane	67-72-1	3.0
Hexachlorophene	70-30-4	1
Isobutyl alcohol	78-83-1	1000
Isophorone	78-59-1	90
Lead	7439-92-1	1.5
Lindane	58-89-9	0.3
Mercury	7439-97-6	0.2
Methacrylonitrile	126-98-7	0.4
Methomyl	16752-77-5	90
Methoxychlor	72-43-5	10.0
2-Methoxyethanol	109-86-4	14.0
Methyl ethyl ketone	78-93-3	200.0
Methyl isobutyl ketone	108-10-1	200
Methylene chloride	75-09-2	50
Methyl parathion	298-00-0	0.9
Mirex	2385-85-5	0.7
Nickel	7440-02-0	70
Nitrobenzene	98-95-3	2.0
N-Nitroso-di-n-butylamine	924-16-3	0.06
N-Nitrosodiphenylamine	86-30-6	70
N-Nitrosomethylethylamine	10595-95-6	0.02
N-Nitroso-n-propylamine	621-64-7	0.05
N-Nitrosopyrrolidine	930-55-2	0.2
p-Phenylene diamine	106-50-3	20
Parathion	56-38-2	20
Pentachlorobenzene	608-93-5	3
Pentachloronitrobenzene	82-68-8	10
Pentachlorophenol	87-86-5	100.0
Phenol	108-95-2	2000
Pronamide	23950-58-5	300
Pyrene	129-00-0	5.9
Pyridine	110-86-1	4
Selenium	7782-49-2	1.0
Silver	7440-22-4	5.0
Styrene	100-42-5	700
1,1,1,2-Tetrachloroethane	630-20-6	10
1,1,2,2-Tetrachloroethane	79-34-5	2
Tetrachloroethylene	127-18-4	0.7
2,3,4,6-Tetrachlorophenol	58-90-2	100
Toluene	108-88-3	1000
Toxaphene	8001-35-2	0.3
trans-1,3-Dichloro-propene	542-75-6	1
Tribromomethane (Bromoform)	75-25-2	70
1,2,4-Trichlorobenzene	120-82-1	70
1,1,1-Trichloroethane	71-55-6	300
Trichloroethylene	79-01-6	0.5
1,1,2-Trichloroethane	79-00-5	6
Trichlorofluoromethane	75-69-4	1000
2,4,5-Trichlorophenoxy-propionic acid (2,4,5 TP or Silvex)	93-72-1	1.0
1,2,3-Trichloropropane	96-18-4	20
2,4,5-Trichlorophenol	95-95-4	400.0
2,4,6-Trichlorophenol	88-06-2	2
Vanadium Pentoxide	1314-62-1	30
Vinyl chloride	75-01-4	0.2
Xylenes (all isomers)	1330-82-1	7000

* If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol concentration is used. The Maximum Concentration for total cresol is 200.0 mg/l.

Appendix D
7-Day Distilled Water Leachate Test's Maximum Contaminant Levels (MCLs)–continued

(30 TAC Chapter 335 Subchapter R APPENDIX 1 Table 3)

Applicability: **Class 3 Waste Evaluations**

Values obtained from 40 Code of Federal Regulations Part 141, Subparts B and G, Maximum Contaminant Levels and 40 Code of Federal Regulations Part 143, Total Dissolved Solids.

Constituent	MCL (mg/l)
Arsenic	0.05
Barium	1
* Benzene	0.005
Cadmium	0.005
* Carbon tetrachloride	0.005
Chlordane	0.002
* Chlorobenzene	0.1
Chromium	0.1
2,4-D	0.07
* Dibromochloropropane	0.0002
* ortho-Dichlorobenzene	0.6
* para-Dichlorobenzene	0.075
* 1,2-Dichloroethane	0.005
* 1,1-Dichloroethylene	0.007
* trans-1,2-Dichloroethylene	0.1
* 1,2-Dichloropropane	0.005
* Ethylbenzene	0.7
Heptachlor	0.0004
Heptachlor epoxide	0.0002
Lead	0.05
Mercury	0.002
Methoxychlor	0.04
Pentachlorophenol	0.001
Selenium	0.05
Silver	0.05
* Styrene	0.1
* Tetrachloroethylene	0.005
* 1,1,1-Trichloroethane	0.20
* Trichloroethylene	0.005
* Toluene	1
Toxaphene	0.003
2,4,5-TP (Silvex)	0.05
* Vinyl chloride	0.002
* Xylenes (total)	10
Total Dissolved Solids	500

* For a Class 3 waste classification, these constituents must also be evaluated using the test methods described in 40 Code of Federal Regulations, Part 261, Appendix II. See §335.507 (4) (A) (ii) for additional information.

Appendix E
Class 1 Toxic Constituents
(other than those identified in Appendix C, and their Estimated Quantitation Limits [EQL's])

Applicability: **Class 3 Waste Evaluations**

This table is to be utilized by the generator in evaluating detection limits for the identified constituents. The EQL's in this table are defined as the lowest detectable levels that can be reliably achieved using the Toxicity Characteristic Leaching Procedure (TCLP) at the time of the printing of this guideline. Applicable EPA method numbers are provided and can be found in EPA Report SW-846 "Test Methods for Evaluating Solid Waste" except where noted. Please note that more than one test method may be available for a particular constituent. Synonyms are provided in brackets "[]".

Constituent	EQL (mg/l)	Method(s)
Acenaphthene	0.2	8100
	0.01	8270
	0.02	8250
Acetone	0.1	8240
Acetonitrile	0.1	8015
[Methyl cyanide]	0.1	8030
Acetophenone	0.001	8250
	0.01	8270
Acrylamide	0.005	8015
Acrylonitrile	0.005	8030
[Vinyl cyanide]	0.005	8240
Anthracene	0.2	8100
	0.02	8250
	0.01	8270
Aniline [Benzyl amine]	0.01	8250
	0.01	8270
Antimony	0.2	204
	0.3	6010
	2.0	7040
	0.03	7041
	2.0	7000A
Benzidine [Dianiline]	0.44	8250
Beryllium	**	210
	0.003	6010
	0.05	7090
	0.002	7091
	0.05	7000A
Bis(2-chloroethyl)ether	0.057	8250
[Dichloroethyl ether]	0.01	8270
Bis(2-ethylhexyl)	0.02	8060
phthalate	0.25	8250
	0.01	8270
Bromodichloromethane	0.001	8010
	0.005	8240
Bromomethane	0.003	8010
[Methylbromide]	0.01	8240
Butylbenzyl phthalate	0.005	8060
[Benzylbutyl phthalate]	0.025	8250
	0.01	8270
Carbon disulfide [CS2]	0.005	8240
Chloroform	0.0005	8010
	0.005	8240
Chloro-m-cresol, p	0.005	8040
	0.02	8270
2-Chlorophenol	0.003	8040
[o-Chlorophenol]	0.01	8270
m-Cresol	0.01	8270
o-Cresol	0.01	8270
p-Cresol	0.01	8270
DDD [Dichloro-diphenyl-	0.0001	8080
dichloroethane]	0.028	8250
	0.01	8270
DDE [Dichloro-diphenyl-	0.00004	8080
ethylene]	0.056	8250
	0.01	8270

Appendix E–continued

EQL Constituent	(mg/l)	Method(s)
DDT [Dichloro-diphenyl-trichloroethane]	0.0001	8080
	0.047	8250
	0.01	8270
Dibutyl phthalate	0.005	8060
	0.01	8270
1,4-Dichlorobenzene	0.004	8010
	0.003	8020
	0.013	8120
	0.01	8270
3,3-Dichlorobenzidine	0.02	8270
Dichlorodifluoromethane	0.01	8010
	0.005	8240
1,3-Dichloropropene	0.003	8010
	0.005	8240
2,4-Dichlorophenol	0.05	8040
	0.01	8270
Dieldrin	0.00002	8080
	0.01	8270
Diethyl phthalate	0.005	8060
	0.01	8270
Dimethoate	0.02	8270
2,4-Dimethylphenol	0.003	8040
	0.01	8270
2,6-Dimethylphenol	**	**
m-Dinitrobenzene	0.01	8270
2,4-Dinitrophenol	0.13	8040
	0.05	8270
2,4-Dinitrotoluene	0.0002	8090
(and 2,6-, mixture)	0.01	8270
Dinoseb	0.007	8150
	0.02	8270
1,4-Dioxane	0.15	8015
Dioxins (Poly chlorinated dibenzo-p-dioxins)		
2,3,7,8-TCDD	0.000005	8280
1,2,3,7,8-PeCdd	0.00001	8280
1,2,3,4,7,8-HxCDD	0.00001	8280
1,2,3,6,7,8-HxCDD	0.00001	8280
1,2,3,7,8,9-HxCDD	0.00001	8280
Diphenylamine	0.01	8270

EQL Constituent	(mg/l)	Method(s)
1,2-Diphenylhydrazine	0.2	1625
Disulfoton	0.002	8140
	0.01	8270
Endosulfan	0.0001	8080
	0.056	8250
Endrin	0.00006	8080
	0.01	8250
2-Ethoxyethanol	**	**
Ethylene dibromide [EDB] (Standard Methods For Examination Of Water and Wastewater)	0.5	6231
Ethylene Glycol	**	**
Fluoranthene	0.2	8100
	0.01	8270
Fluorene	0.2	8100
	0.01	8270
Furans (Polychlorinated dibenzo furans)		
2,3,7,8-TCDF	0.00001	8280
1,2,3,7,8-PeCDF	0.00001	8280
2,3,4,7,8-PeCDF	0.00001	8280
1,2,3,4,7,8-HxCDF	0.00001	8280
1,2,3,6,7,8-HxCDF	0.00001	8280
1,2,3,7,8,9-HxCDF	0.00001	8280
Hexachlorobenzene	0.0005	8120
	0.0	8270
Hexachloro-1,3-butadiene	0.0034	8120
	0.01	8270
Hexachlorocyclopentadiene	0.004	8120
	0.01	8270
Hexachloroethane	0.0003	8120
	0.01	8270
Hexachlorophene	0.05	8270
Isobutyl alcohol	0.05	8015
Isophorone	0.06	8090
	0.01	8270
Lindane	0.00004	8080
	0.01	8250
	0.00004	608
	0.01	625

Appendix E–continued

EQL Constituent	(mg/l)	Method(s)
Methacrylonitrile	0.005	8015
Methomyl	0.09	632
2-Methoxyethanol	**	**
Methyl ethyl ketone [MEK]	0.01	8015
	0.1	8240
Methyl isobutyl ketone [MIBK]	—	8015
	0.005	8240
Methylene chloride	0.005	8010
[Dichloromethane]	0.005	8240
Methyl parathion	0.0003	8140
	0.01	8270
Mirex	**	**
Nickel	0.04	249
	0.05	6010
	0.4	7520
	0.04	7000A
Nitrobenzene	0.04	8090
	0.01	8250
	0.01	8270
N-Nitroso-di-n-butylamine	0.01	8270
N-Nitrosodiphenylamine	0.01	8270
N-Nitrosomethylethylamine	0.02	8270
N-Nitroso-n-propylamine	0.01	8270
N-Nitrosopyrrolidine	0.01	8270
p-Phenylene diamine	0.01	8270
Parathion	0.01	8270
	0.0003	8140
Pentachlorobenzene	0.02	8270
Pentachloronitrobenzene	0.01	8270
Phenol	0.001	8040
	0.01	8270
Pronamide	0.01	8270
Pyrene	0.2	8100
	0.01	8270
Pyridine	0.005	8240
	0.01	8270
1,1,1,2-Tetrachloroethane	0.005	8010
	0.005	8240
1,1,2,2-Tetrachloroethane	0.0003	8010
	0.005	8240
2,3,4,6-Tetrachlorophenol	0.01	8270
trans-1,3-Dichloropropene	0.0034	8010
	0.005	8240
Tribromomethane [Bromoform]	0.002	8010
	0.005	8240
1,2,4-Trichlorobenzene	0.01	8270
1,1,2-Trichloroethane	0.0002	8010
[1,1,2-TCE]	0.005	8240
Trichlorofluoromethane	0.01	8010
[Freon 11]	0.005	8240
1,2,3-Trichloropropane	0.01	8010
	0.005	8240
2,4,5-Trichlorophenol	0.01	8270
2,4,6-Trichlorophenol	0.006	8040
	0.01	8270
Vanadium Pentoxide	0.2	286
	0.08	6010
	2.0	7910
	0.04	7911

* If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol concentration is used.

** This information not available at time of publication.

Appendix F
7-Day Distilled Water Leachate Test
(30 TAC Chapter 335 Subchapter R Appendix 4)

Applicability: **Class 3 Waste Evaluations**

This test is intended only for dry, solid wastes, i.e., waste materials without any free liquids.

1. Place a 250 gram (dry weight) representative sample of the waste material in a 1500 milliliter Erlenmeyer flask.

2. Add 1 liter of deionized or distilled water into the flask and mechanically stir the material at a low speed for five (5) minutes.

3. Stopper the flask and allow to stand for seven (7) days.

4. At the end of seven (7) days, filter the supernatant solution through a .45 micron filter, collecting the supernatant into a separate flask.

5. Subject the filtered leachate to the appropriate analysis.

Appendix G
Form Codes
(30 TAC Chapter 335 Subchapter R Appendix 3)

Applicability: **All Waste**

In determining a waste stream's form code, it is recommended that the generator first determine into which major category the waste stream fits (ie. inorganic liquids). The generator should then review all the form code descriptors in that category to determine which code or codes best describe the generator's waste stream. The generator should then chose, from his narrowed down list, a form code for the waste stream.

Form codes are fairly generic in their descriptions. It is possible that more than one form code may be applicable to a particular waste stream. Generators should assign the form code which best describes the waste stream. If more than one form code can "best describe" the waste stream, then the generator should choose one of those several codes.

Code	Waste Description
	Lab Packs
	Lab Packs *– Lab packs of mixed wastes, chemicals, lab wastes*
001	Lab packs of old chemicals only
002	Lab packs of debris only
003	Mixed lab packs
004	Lab packs containing acute hazardous wastes
009	Other lab packs (Specify in Comments)
	Liquids
	Inorganic Liquids *– Waste that is primarily inorganic and highly fluid (e.g., aqueous), with low suspended inorganic solids and low organic content*
101	Aqueous waste with low solvents
102	Aqueous waste with low other toxic organics
103	Spent acid with metals
104	Spent acid without metals
105	Acidic aqueous waste
106	Caustic solution with metals but no cyanides
107	Caustic solution with metals and cyanides
108	Caustic solution with cyanides but no metals
109	Spent caustic
110	Caustic aqueous waste
111	Aqueous waste with reactive sulfides
112	Aqueous waste with other reactives (e.g., explosives)
113	Other aqueous waste with high dissolved solids
114	Other aqueous waste with low dissolved solids
115	Scrubber water
116	Leachate
117	Waste liquid mercury
119	Other inorganic liquids (Specify in Comments)
198	Nonhazardous photographic chemical wastes (inorganic)
199	Brine solution that could also bear the form code 113
	Organic Liquids *– Waste that is primarily organic and is highly fluid, with low inorganic solids content and low-to-moderate water content*
201	Concentrated solvent-water solution
202	Halogenated (e.g., chlorinated) solvent
203	Non-halogenated solvent
204	Halogenated/non-halogenated solvent mixture
205	Oil-water emulsion or mixture
206	Waste oil
207	Concentrated aqueous solution of other ogranics
208	Concentrated phenolics
209	Organic paint, ink, lacquer, or vanish
210	Adhesives or epoxies
211	Paint thinner or petroleum distillates
212	Reactive or polymerizable organic liquids
219	Other organic liquids (Specify in Comments)

Appendix G–continued

Code	Waste Description
296	Ethylene glycol based antifreeze
297	Nonhazardous liquids containing greater than or equal to (>) 50 and less than (<) 500 ppm PCBs
298	Nonhazardous liquids containing greater than or equal to (>) 500 ppm PCBs
299	Nonhazardous photographic chemical waste (organic)

Solids

*(These codes **do not** apply to pumpable waste.)*

Inorganic Solids *– Waste that is primarily inorganic and solid, with low organic content and low-to-moderate water content;* ***not pumpable***

301	Soil contaminated with organics
302	Soil contaminated with inorganics only
303	Ash, slag, or other residue from incineration of wastes
304	Other “dry” ash, slag, or thermal residue
305	“Dry” lime or metal hydroxide solids chemically “fixed”
306	“Dry” lime or metal hydroxide solids not “fixed”
307	Metal scale, filings, or scrap
308	Empty or crushed metal drums or containers
309	Batteries or battery parts, casings, cores
310	Spent solid filters or adsorbents
311	Asbestos solids and debris
312	Metal-cyanide salts/chemicals
313	Reactive cyanide salts/chemicals
314	Reactive sulfide salts/chemicals
315	Other reactive salts/chemicals
316	Other metal salts/chemicals
319	Other waste inorganic solids (Specify in Comments)
388	Empty or crushed glass containers
389	Nonhazardous sandblasting waste
390	Nonhazardous concrete/cement/construction debris
391	Nonhazardous dewatered wastewater treatment sludge
392	Nonhazardous dewatered air pollution control device sludge
393	Catalyst waste
394	Nonhazardous solids containing greater than or equal to (>) 50 ppm and less than (<) 500 ppm PCBs
395	Nonhazardous solids containing greater than or equal to (>) 500 ppm PCBs
396	Nonhazardous electrical equipment/devices containing greater than or equal to (>) 50 ppm and less than (<) 500 ppm PCBs.
397	Nonhazardous electrical equipment/devices containing greater than or equal to (>) 500 ppm PCBs.
398	Nonhazardous soils containing greater than or equal to (>) 50 ppm and less than (<) 500 ppm PCBs.
399	Nonhazardous soils containing greater than or equal to (>) 500 ppm PCBs

Organic Solids *– Waste that is primarily organic and solid, with low-to-moderate inorganic content and water content;* ***not pumpable***

401	Halogenated pesticide solid
402	Non-halogenated pesticide solid
403	Solids resins or polymerized organics
404	Spent carbon
405	Reactive organic solid
406	Empty fiber or plastic containers
407	Other halogenated organic solids (Specify in Comments)
409	Other non-halogenated organic solids (Specify in Comments)
488	Wood debris
489	Petroleum contaminated solids
490	Sand blasting waste
491	Dewatered biological treatment sludge
492	Dewatered sewage or other untreated biological sludge
493	Catalyst waste
494	Solids containing greater than or equal to (>) 50 ppm and less than (<) 500 ppm PCBs
495	Solids containing greater than or equal to (>) 500 ppm PCBs
496	Electrical equipment/devices containing greater than or equal to (>) 50 ppm and less than (<) 500 ppm PCBs.

Appendix G–continued

Code	Waste Description
497	Electrical equipment/devices containing greater than or equal to (>) 500 ppm PCBs.
498	Soil containing greater than or equal to (>) 50 ppm and less than (<) 500 ppm PCBs.
499	Soils containing greater than or equal to (>) 500 ppm PCBs.

Sludges

(These codes only apply to pumpable waste.)

Inorganic Sludges *– Waste that is primarily inorganic, with moderate-to-high water content and low organic content,* and ***pumpable***

501	Lime sludge without metals
502	Lime sludge with metals/metal hydroxide sludge
503	Wastewater treatment sludge with toxic organics
504	Other wastewater treatment sludge
505	Untreated plating sludge without cyanides
506	Untreated plating sludge with cyanides
507	Other sludge with cyanides
508	Sludge with reactive sulfides
509	Sludge with other reactives
510	Degreasing sludge with metal scale or filings
511	Air pollution control device sludge (e.g., fly ash, wet scrubber sludge)
512	Sediment or lagoon dragout contaminated with organics
513	Sediment or lagoon dragout contaminated with inorganics only
514	Drilling mud
515	Asbestos slurry or sludge
516	Chloride or other brine sludge
519	Other inorganic sludges (Specify in Comments)
597	Catalyst waste
598	Nonhazardous sludges containing greater than or equal to (>) 50 ppm and less than (<) 500 ppm PCBs
599	Nonhazardous sludges containing greater than or equal to (>) 500 ppm PCBs

Organic Sludges *– Waste that is primarily organic with low-to-moderate inorganic solids content and water content, and* ***pumpable***

601	Still bottoms of halogenated (e.g., chlorinated) solvents or other organic liquids
602	Still bottoms on non-halogenated solvents or other organic liquids
603	Oily sludge
604	Organic paint or ink sludge
605	Reactive or polymerizable organics
606	Resins, tars, or tarry sludge
607	Biological treatment sludge
608	Sewage or other untreated biological sludge
609	Other organic sludges (Specify in Comments)
695	Petroleum contaminated sludges other than still bottoms and oily sludges
696	Grease
697	Catalyst waste
698	Nonhazardous sludges containing greater than or equal to (>) 50 ppm and less than (<) 500 ppm PCBs
699	Nonhazardous sludges containing greater than or equal to (>) 500 ppm PCBs

Gases

Inorganic Gases *– Waste that is primarily inorganic with a low organic content and is a gas at atmospheric pressure*

701	Inorganic gases

Organic Gases *– Waste that is primarily organic with low-to-moderate inorganic content and is a gas at atmospheric pressure*

801	Organic gases

Plant Trash

(In order to be considered for one of the two plant refuse designations, a waste must first meet the following two criteria.

First*, the waste* ***must*** *be a Class 2 waste. This means that a proper classification determination must be performed for each item which a facility is considering as one of the plant refuse designations. A waste is not a Class 2 solely because it has been designated as a plant refuse waste.* ***Hazardous*** *and* ***Class 1 wastes*** *are* ***not eligible*** *for designation as one of the plant refuses.*

Appendix G–continued

Code	Waste Description	Code	Waste Description

***Second**, the waste must meet the particular definition of the plant refuse term. For more information on these terms, please refer to the terms listed in this table as well as the "Definitions" section which follows this table.)*

902 **Supplemental plant production refuse** – any Class 2 waste from production, manufacturing, or laboratory operations as long as the total amount of the supplemental plant production refuse does not exceed twenty percent of the total plant trash (form code 999) volume or weight, whichever is less – this could include, but is not limited to, such things as metal parts, floor sweepings, and off-specification materials

999 **Plant Trash** – any Class 2 waste originating in the facility offices, laboratory, plant production area or food services/cafeteria operations that is composed of paper, cardboard, linings, wrappings, paper and/or wooden packaging materials, uncontaminated food wastes and/or packaging, cafeteria wastes, glass, aluminum foil, aluminum cans, aluminum scrap, stainless steel, steel, iron scrap, plastics, styrofoam, rope, twine, uncontaminated rubber, uncontaminated wooden materials, equipment belts, wirings, uncontaminated cloth, metal bindings, empty containers with a holding capacity of less than five gallons, uncontaminated floor sweepings, and personal cosmetics generated by facility personnel (does not include cosmetics generated as a result of manufacturing or plant production operations).

Form Code Definitions

The following are definitions of terms utilized in form codes:

Acidic – A material having a pH less than 7.0.

Alkaline – A material having a pH greater than 7.0.

Aqueous – A water solution containing organic and/or inorganic constituents dissolved in solution.

Caustic – A material which is corrosive or irritating toliving tissue and has a pH greater than 7.

Inorganic – Chemicals that are not organic (i.e., water, carbon dioxide, carbon disulfide, iron, zinc, steel). Generally, if a waste is composed of more than 50% inorganic materials, it is considered an inorganic waste.

Organic – Chemicals composed primarily of carbon and hydrogen and their derivatives. (ie. methylene chloride, benzene, petroleum products) In general, if a waste is composed of 50% or more organic materials, it is considered an organic waste.

Plant Trash – Includes the following Class 2 wastes which are produced as a result of plant production, manufacturing, laboratory, general office, cafeteria or food service operations; paper, cardboard, linings, wrappings, paper or wood packaging materials, food wastes, cafeteria wastes, glass, aluminum foil, aluminum cans, aluminum scrap, stainless steel, steel, iron scrap, plastics, styrofoam, rope, twine, uncontaminated rubber, uncontaminated wooden materials, equipment belts, wirings, uncontaminated cloth, metal bindings, empty containers with a holding capacity of less than five gallons, uncontaminated floor sweepings, and personal cosmetics generated by facility personnel (does not include cosmetics generated as a result of manufacturing or plant production operations). **Please note that hazardous waste and Class 1 waste can not be designated as "plant office refuse".** Plant trash shall not include oils, lubricants of any type, oil filters, contaminated soils, sludges, or wastewaters.

Examples of "plant trash" include Class 2 soda cans, lunch sacks, food scraps, envelopes, plastic binders, empty boxes, pallets, styrofoam acid shipping boxes, chemical container liners, shrink wrap, and broken glassware.

As another example, used typing paper from the secretarial area could be considered "plant trash" because it resulted from general office operations. (Please note that typing paper would normally be considered a

Class 2 waste unless it were contaminated with something to cause it to be considered a hazardous or Class 1 waste. For example, if typing paper were used to clean up a spill of a F003 waste, it would be considered a hazardous waste.)

As another example, a Class 2 off-specification production chemical could not be considered "plant trash" because it does not meet the definition of a "plant trash". However, the Class 2 off-specification production chemical might be considered a "supplemental plant production refuse" as long as the weight/volume limits established for "supplemental plant production refuse" were not exceeded. (For more information on "supplemental plant production refuse and weight/volume limits, please see "Supplemental Plant Production Refuse" in these definitions.

Reactive – A material is reactive if it is capable of detonation or explosive decomposition:

1. at standard temperature and pressure, or
2. if subjected to a strong ignition source, or
3. heated under confinement.

A material is also considered reactive if, when mixed with water it is:

1. potentially explosive, or
2. reacts violently, or
3. generates toxic gases or vapors (i.e. hydrogencyanide or hydrogensulfide).

A material is also considered reactive if it is:

1. normally unstable and readily undergoes violent changes, or
2. a forbidden explosive (see 49 CFR §173.53), or
3. a Class B explosive (see 49 CFR §173.88).

Solvent – A liquid used to dissolve another material.

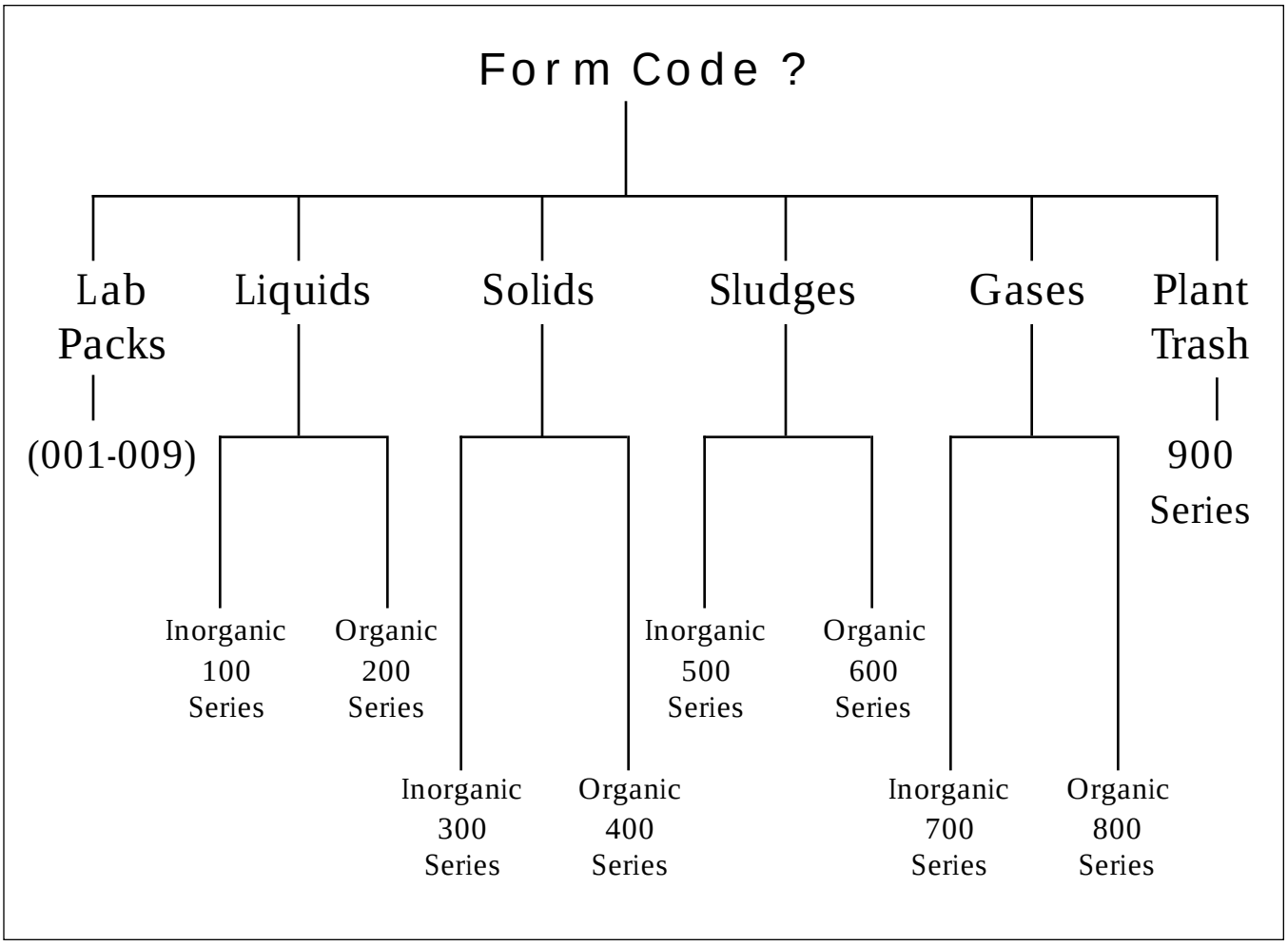
Supplemental Plant Production Refuse – Any **Class 2 Waste from production, manufacturing, or laboratory operations** can be designated as **"supplemental plant production refuse"** (form code 999) as long as the total amount of the supplemental plant production refuse **does not exceed twenty percent of the total plant production refuse volume or weight, whichever is less**.

Individual wastes which have been designated "supplemental plant production refuse" may be designated by the generator at a later time as a separate waste in order to maintain the "supplemental plant production refuse" at a level below 20% of the "plant trash" amount. For any waste stream so redesignated, the generator must provide the initial notification information required pursuant to 30 TAC Chapter 335.

Please note that hazardous waste and Class 1 waste can not be designated as "supplemental plant production refuse".

Examples of "supplemental plant production refuse" include Class 2 steel shavings, empty metal containers, aerosol cans, old chemicals, safety equipment, and machine parts.

Please note that when a site notifies the Commission that it generates "supplemental plant production refuse", it must include a list of those wastes which are expected to be included in the "supplemental plant production refuse" designation. If that list increases, the generator must notify the Commission of the additions to that list; otherwise, the Commission will not view the additions as "supplemental plant production refuse".


Form Code ?
Lab Packs
(001-009)
Liquids
Inorganic 100 Series
Organic 200 Series
Solids
Inorganic 300 Series
Organic 400 Series
Sludges
Inorganic 500 Series
Organic 600 Series
Gases
Inorganic 700 Series
Organic 800 Series
Plant Trash
900 Series

Liquids

Inorganic – 100 series

(Waste that is primarily inorganic and highly fluid, (e.g., aqueous), with low suspended solids and low organic content.)

Examples:

1. 99% water with 1% methanol **101**
2. 98% water with 2% methyl ethyl ketone MEK **102**
3. Waste sulfuric acid from plastics cleaning **104**
4. Water with 0.73% potassium permanganate **114**
5. Leachate from landfills **116**
6. Waste photographic fixer **198**

Organic – 200 series

(Waste that is primarily organic and is highly fluid, with low inorganic solids and low-to-moderate water content.)

Examples:

1. Solvent mixture 65% methylene chloride, 30% phenol, 5% cresol **204**
2. 95% motor oil, 5% water emulsion **205**
3. Used hydraulic oil **206**
4. Unused varnish and organic paint **209**
5. Waste ethylene glycol antifreeze **296**

Solids

Inorganic – 300 series

*(Waste that is primarily inorganic and solid, with low organic content and low-to-moderate water content; **not pumpable.)***

Examples:

1. Soil contaminated with naptha **301**
2. Incinerator ash **303**
3. Crushed RCRA empty metal drums **308**
4. Lead acid batteries, chips and cores **309**
5. Concrete, plaster and other construction debris **390**
6. Metalic catalyst waste **393**

Organic – 400 series

*(Waste that is primarily organic and solid, with low-to-moderate inorganic and water content; **not pumpable.)***

Examples:

1. Unused malathion pellets **402**
2. Spent carbon from filters **404**
3. Wooden house exterior debris **488**
4. Paper contaminated with oil **489**
5. Sand blasting waste from petroleum tanks **490**
6. Dewatered sewage sludge **492**

Sludges

Inorganic – 500 series

*(Waste that is primarily inorganic, with moderate-to-high water content, and low organic content, and **pumpable.)***

Examples:

1. Wastewater treatment sludge containing phenolics **503**
2. Zinc plating wastewater sludge containing cyanide **506**
3. Sludge from pollution removal scrubber 5**11**
4. Sediment pond dragout contaminated with lead **513**
5. Water based drilling mud with brine **514**
6. Waste metal catalyst with 0.89% organics **597**

Organic – 600 series

*(Waste that is primarily organic, with moderate-to-high water content, and low inorganic content, and **pumpable.)***

Examples:

1. Still bottoms from naptha recovery **602**
2. Ink and paint sludge from printing billboards **604**
3. Bioremediation sludge from oil spill cleanup **607**
4. Motor repair facility sludge with grease **603**
5. Refinery wastewater sludge with petroleum compounds **695**
6. Waste lubricating grease **696**

Lab Packs – 001-009 series

Examples:

1. Lab pack containing debris **002**
2. Lab pack containing old unused or partially used chemicals **001**

Plant Trash – 900 series

Examples:

1. Office debris (i.e., paper, plastic, alluminum cans and fax paper) **999**
2. Scrap plastic from molds of toys and souvenirs **902**
3. Packing debris from unpacking of raw materials **999**